This Set Contains CUMULATIVE INDEX to PHOTOFACT Folders Sets 1 Through 176

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	37M25, 26, 27 (Ch. 21Z1), 47M15 (Ch. 21W1), 47M15A (Ch. 21Z1), 47M16, 17 (Ch. 21W1), 47M35, 36, 37 (Ch. 21Z1), 57M10, 11, 12 (Ch. 21Z1A), 57M16, 17 (Ch. 21Z1), 321M25, 26, 27, 421M15, 16, 521M15, 16, 17, (Ch. 21Y1) Tel. Rec.	177-2
Aircastle	607.299	177-3
Airline	25WG-1570A, B, C, 25WG-1571A, B, 25WG-1572A, B	177-4
Approved Electronics	A-710	177-5
Esquire	550	177-6
Fada	7T32, 77T32, 721 Tel. Rec.	177-7
Hallicrafters	1005, 1006, 1015, 1016, 1017, 1018, 1019 (Ch. A1100D) Tel. Rec.	177-8
Majestic	Series 106 and 108 Tel. Rec. Prod. Chg. Bul. 43	177-1
Masco	RK-5SLR	177-9
Motorola	52C6, 52C7, 52C8 (Ch. HS-310)	177-10
Motorola	52R11U, 52R12U, 52R13U, 52R14U, 52R15U, 52R16U (Ch. HS-315)	177-11
Raytheon	C-2001A, C-2002A, C-2006A, M-2007A, M-2008A, RC-2005A (Ch. 20AY21) Tel. Rec. Prod. Chg. Bul. 43	177-1
Steelman	601	177-12
Stromberg-Carlson	119C Tel. Rec.—Prod. Chg. Bul. 43	177-1
Tele King	K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B, (Ch. TVJ) Tel. Rec.	177-13
Truetone	2D1185C, 2D1185D Tel. Rec. Prod. Chg. Bul. 43	177-1
Truetone	2D2149A Tel. Rec.	177-14
Westinghouse	H-692T21, H-695K21, H-701K21, H-711T21, H-713K21, H-714K21, H-715K21, H-720K21, H-721K21 (Ch. V-2217-2) Tel. Rec. Prod. Chg. Bul. 43	177-1

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 8 IN SET #153

MAJESTIC MODELS Series 106 & 108

Production changes on Majestic television receivers series 106 and 108 are as follows:

Remove R93.

Connect two 10KΩ resistors in parallel between +210 V. and R14 (15KΩ) resistor.

R28 (68KΩ) was replaced by a 220KΩ ½ watt resistor.

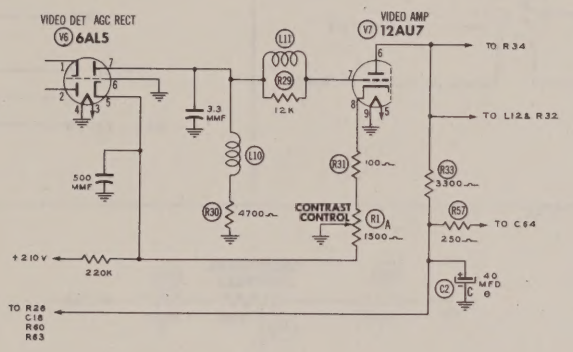
A 150Ω ½ watt resistor was connected in parallel with capacitor C64 (.25MFD-200V.)

When alternate Ratio Detector Transformer part # 1.552-1 is used, R-49 (220Ω) is not used.

A 330KΩ resistor was connected between the vertical size control and the junction of R72, C51, and R71. A 4MFD capacitor was connected from the ground to the junction of the vertical size control and the added 330KΩ resistor.

The connection between V5 pin 7 and V6 pin 5 was removed.

A schematic given below shows changes in the AGC rectifier circuit and 1st. Video Amp. circuit.



SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 9 IN SET 149

RAYTHEON MODELS C-2001A, C-2002A, C-2006A, M-2007A, M-2008A, RC-2005A (Ch. 20AY21)

The 20AY21 chassis employed in Raytheon Models C-2001A, C-2002A, and C-2006A is also incorporated in Raytheon Models M-2007A, M-2008A and RC-2005A.

Production changes on chassis 20AY21 are as follows:

The 12AT7 video amplifier tube was changed to a 6AB4 in chassis stamped with RTMA date code numbers 124115 and up.

A new Video Trap Coil (L33) part #201-20062 was incorporated in chassis stamped 124106 and up.

The horizontal linearity coil (L42) was changed to part #201-20186-1 in chassis stamped 124116 and up.

The deflection yoke was changed to part # 201-19947-1.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 13 IN SET #154

TRUETONE MODELS 2D1185C, 2D1185D

Truetone Models 2D1185C, D are similar to Models 2D1185A, B. Model 2D1185C uses 17" glass picture tube. Model 2D1185D uses 17" metal picture tube.

Circuit changes are as follows:

Model 2D1185D - Capacitor C50 is removed from ground and connected to +390V.

A 1Meg Tone Control and a .005MFD capacitor has been added from the high side of the Volume Control to ground.

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET #130

Stromberg-Carlson Model 119C is similar to Models 119CDM, CM, 119M5A, D, G, I, M, R and 119RPM2 except for the following:

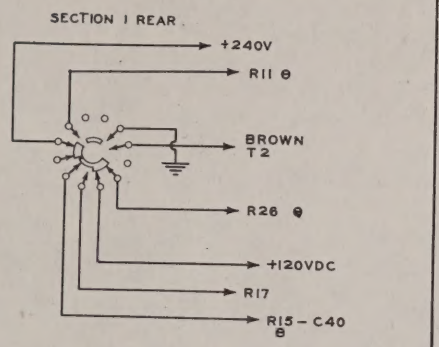
R55 (220Ω) was removed.

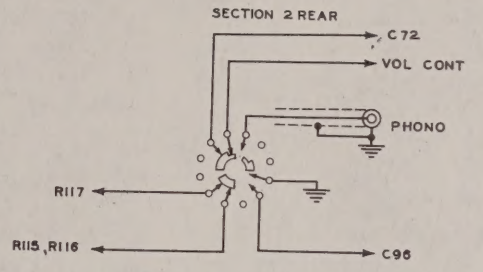
R95 changed 1.8Meg.

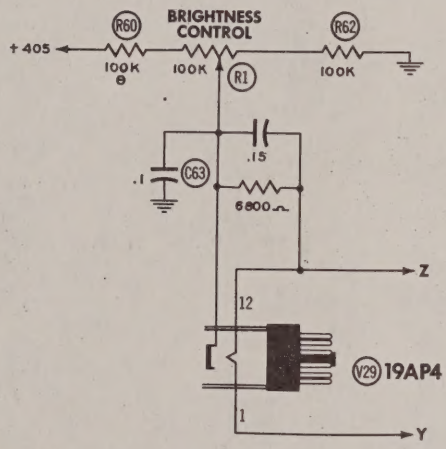
A 100MFD capacitor was connected from V18 pin 7 to ground.

A .005MFD capacitor was connected from V17 pin 2 to ground.

Partial schematic below shows Brightness Control circuit, also, the connections for Phono-FM-Low Band TV-High Band TV Switch.





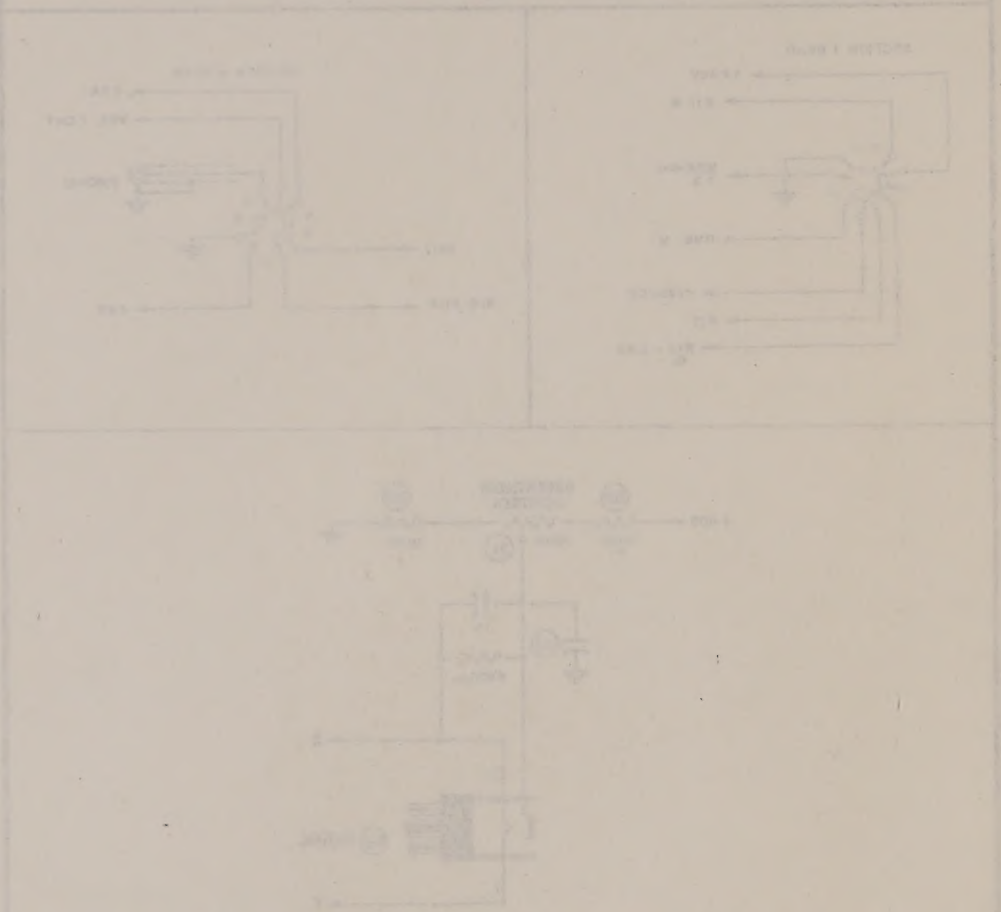


STROMBERG-CARLSON
MODEL 119C

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 15 IN SET 167

Westinghouse Models H-692T21, H-695K21, H-701K21, H-711T21, H-713K21, H-714K21, H-715K21, H-720K21, H-721K21 employ chassis V-2217-2 which is the same as chassis V-2216-2 (Set 167, Folder 15) except a 21" Cathode Ray Tube (21FP4A) is used instead of a 17" picture tube. In addition the power transformer changes to part #V-9958-2.

WESTINGHOUSE MODELS H-692T21, H-695K21, H-701K21, H-711T21, H-713K21, H-714K21, H-715K21, H-720K21, H-721K21 (Ch. V-2217-2).



PHOTOFACT* Folder

ADMIRAL CHASSIS 21W1, 21Y1, 21Z1, 21Z1A

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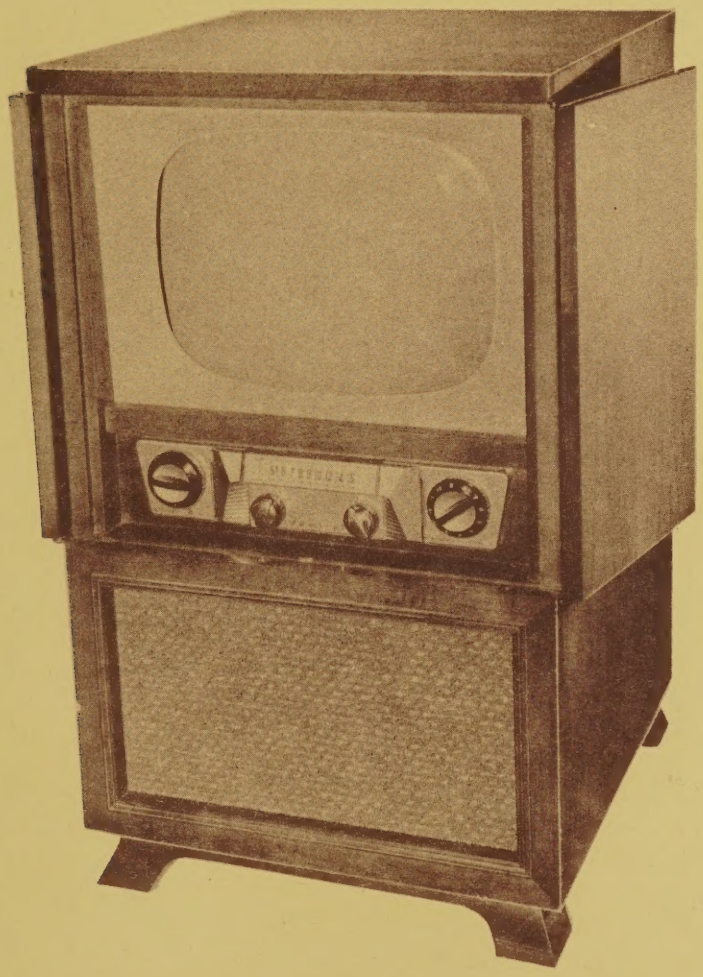
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 47M15

ADMIRAL CHASSIS
21W1, 21Y1, 21Z1, 21Z1A

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DATE 8-52 SET 177 FOLDER 2

ADMIRAL CHASSIS 21W1, 21Y1, 21Z1, 21Z1A

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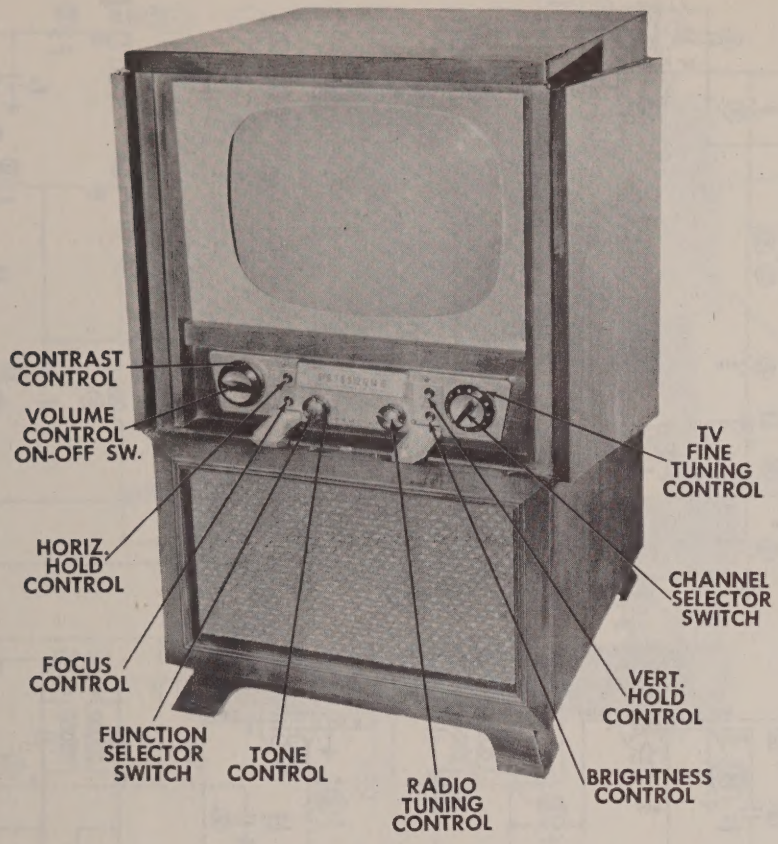

ADMIRAL 47M15

TRADE NAME	Admiral	MODELS	CHASSIS		RECORD CHANGER
		37M25, 37M26, 37M27	21Z1	Runs 1 thru 26	RC550A or RC550GA
		47M15	21W1	Runs 1 thru 26	
		47M15A	21Z1	Runs 1 thru 26	
		47M16, 47M17	21W1	Runs 1 thru 26	
		47M35, 47M36, 47M37	21Z1	Runs 1 thru 26	
		57M10, 57M11, 57M12	21Z1A	Runs 1 thru 26	
		57M16, 57M17	21Z1	Runs 1 thru 26	
		321M25, 321M26, 321M27	21Y1	Runs 1 thru 26	RC550A or RC550GA
		421M15, 421M 16	21Y1	Runs 1 thru 26	
		521M15, 521M16, 521M17	21Y1	Runs 1 thru 26	
MANUFACTURER	Admiral Corp., 3800 W. CortlandSt., Chicago 47, Ill.				
TYPE SET	Television - AM Receiver				
TUBES	Twenty-three				
POWER SUPPLY	110-120 Volts AC-60 Cycle		RATING	1.85Amp. @ 117 Volts AC	
TUNING RANGE	535-1620 KC (AM) - Channels 2 thru 13 (TV)				

INDEX

Alignment Instructions 6, 7
Drive Cord Stringing (Tone Control) 19
Dial Cord Stringing (Radio) 19
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions ..... 13 thru 16
Photographs
Cabinet - Rear View 11
Capacitor and Alignment Identification 4, 9
Chassis - Top View 3
Photographs (Cont.)
RF Tuner 10
Radio Chassis 18
Resistor and Inductor Identification 12, 17
Resistance Measurements 8
Schematic 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

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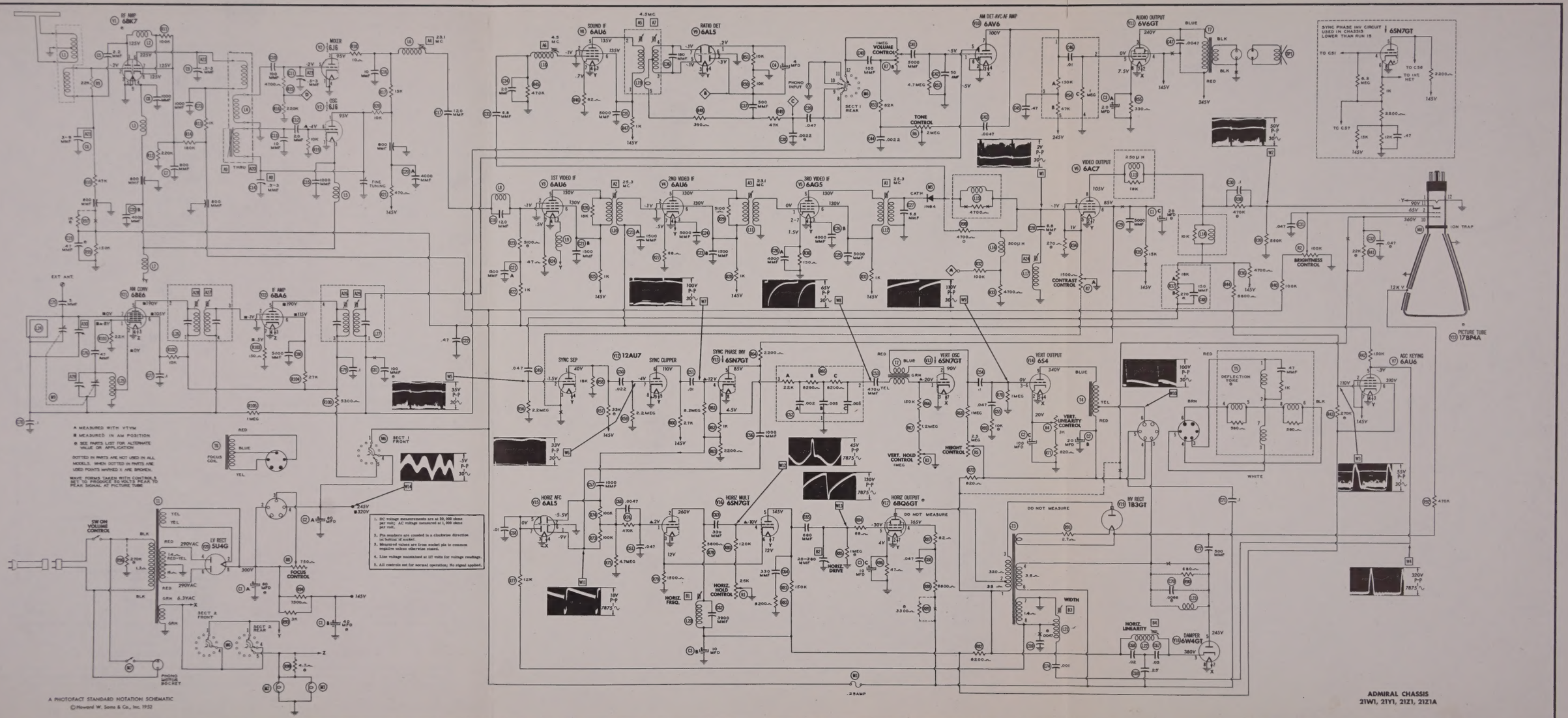
ADMIRAL CHASSIS 21W1, 21Y1, 21Z1, 21Z1A


RF AMP 6BK7
MIXER 6J6
OSC 6J6
IF AMP 6BA6
AM CONV 6BE6
SOUND IF 6AU6
RATIO DET 6AL5
AM DET-AVC-AF AMP 6AV6
AUDIO OUTPUT 6V6GT
1ST VIDEO IF 6AU6
2ND VIDEO IF 6AU6
3RD VIDEO IF 6AG5
VIDEO OUTPUT 6AC7
SYNC PHASE INV 6SN7GT
SYNC SEP
SYNC CLIPPER 12AU7
VERT OSC 6SN7GT
VERT OUTPUT 6S4
HORIZ AFC 6AL5
HORIZ MULT 6SN7GT
HORIZ OUTPUT 6BQ6GT
HV RECT 1B3GT
DAMPER 6W4GT
AGC KEYING 6AU6
PICTURE TUBE 17BP4A
LV RECT 5U4G
VOLUME CONTROL
TONE CONTROL
CONTRAST CONTROL
BRIGHTNESS CONTROL
HEIGHT CONTROL
VERT. HOLD CONTROL
HORIZ. HOLD CONTROL
HORIZ. FREQ.
HORIZ. DRIVE
HORIZ. LINEARITY
VERT. LINEARITY CONTROL
FOCUS CONTROL
WIDTH
ION TRAP
DEFLECTION YOKE
SW ON VOLUME CONTROL
PHONO MOTOR SOCKET
FOCUS COIL
EXT ANT.
SECT I FRONT
SECT I REAR
SECT II FRONT
SECT II REAR
DO NOT MEASURE
A MEASURED WITH VTVM
B MEASURED IN AM POSITION
C SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE SIX VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
3. Pin numbers are counted in a clockwise direction at bottom of socket.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.
.25AMP
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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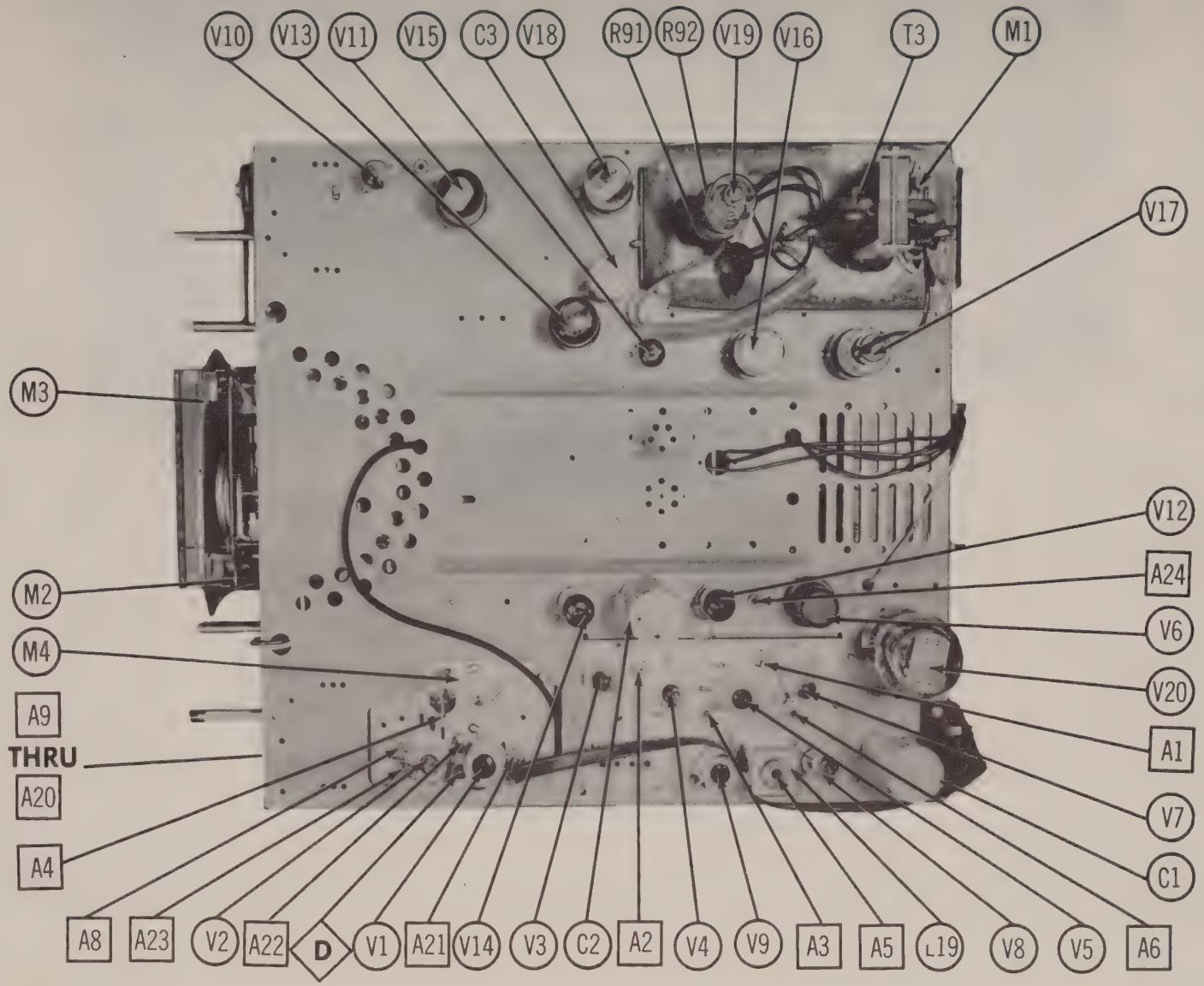
ADMIRAL CHASSIS 21W1, 21Y1, 21Z1, 21Z1A

ADMIRAL CHASSIS
21W1, 21Y1, 21Z1, 21Z1A



CHASSIS TOP VIEW

ADMIRAL CHASSIS
21W1, 21Y1, 21Z1, 21Z1A

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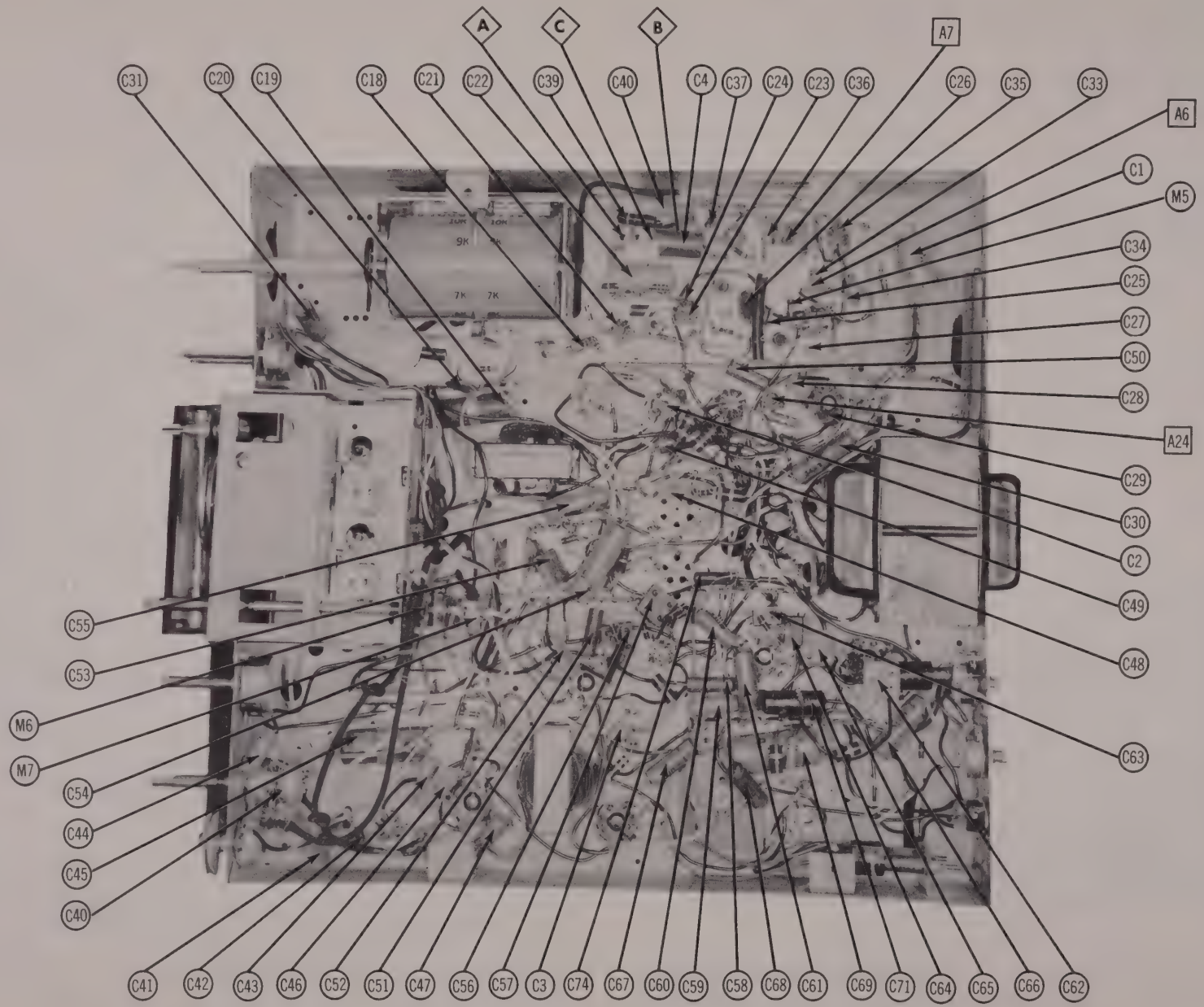
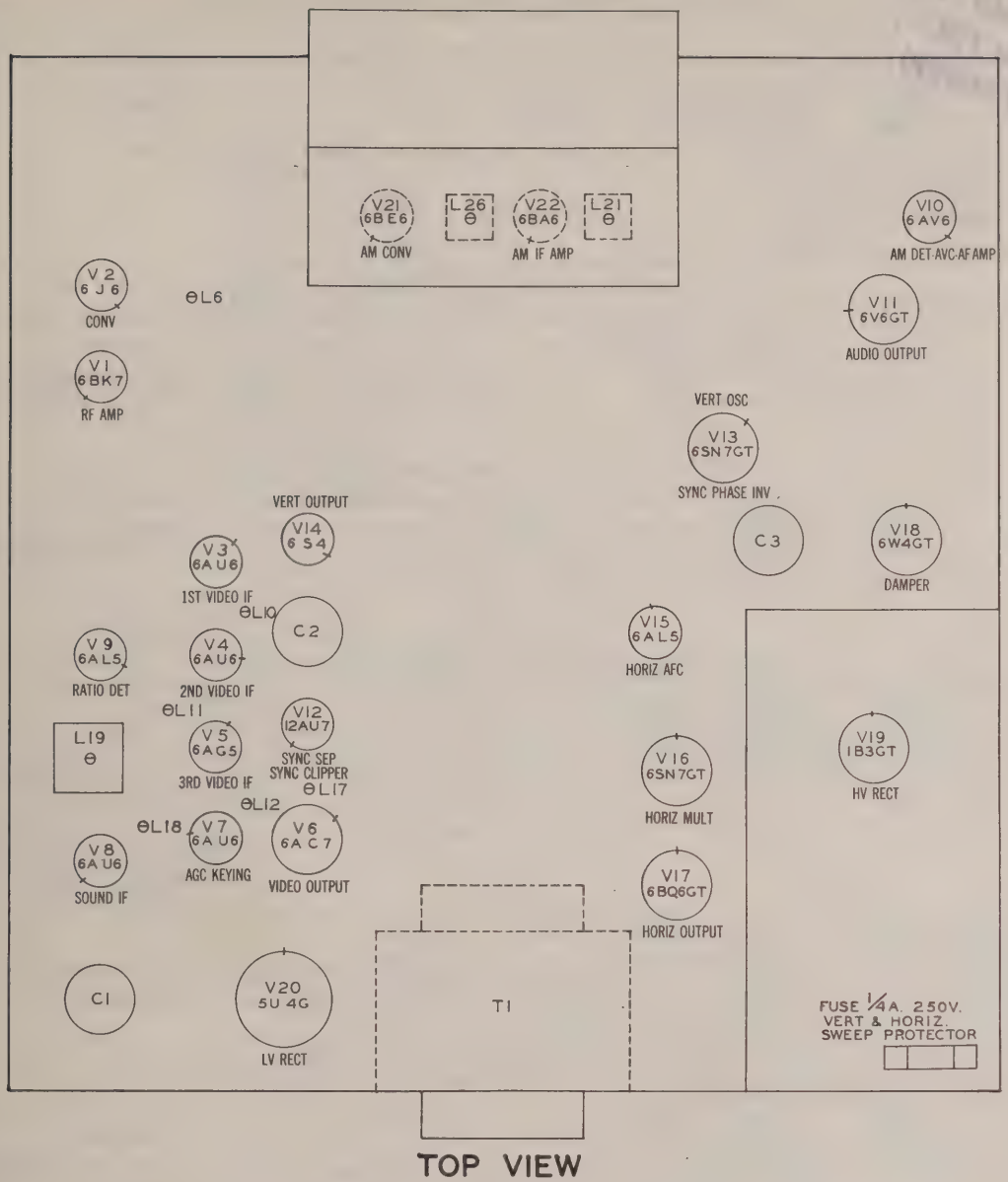


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V20

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V6, V23
Has Pic, No Sound, - V8, V9, V10, V11
Overloaded Picture - V7

SYNC FAILURE
No Vert. Sync - V13
No Horizl Sync - V13, V15, V16
No Vert. or Horiz. Sync - V12, V13

SWEEP FAILURE
No Raster, Has Sound - V16, V17, V18, V19, V23, Fuse (M1)
No Vertical Deflection - V14
Poor Vert. Linearity or Foldover - V13, V14
Poor Horiz. Linearity or Foldover - V16, V17, V18
Narrow Picture - V16, V17, V18, V20
Vert. Off Freq. - V13
Horiz. Off Freq. - V13, V15, V16

TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneouse indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	25.3MC (Unmod.)	Any	DC probe to point (A). Common to chassis.	A1, A2	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 3 volt battery to the ungrounded side of C22. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to chassis.	24MC (10MC Swp)	21.25MC 22.MC 24.3MC 25.75MC	Any	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to fig.1 If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Set contrast control fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A5, A6	Adjust for maximum deflection.
5.	"	"	"		DC probe to point (C). Common to chassis.	A7	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A5, A6	Disconnect stabilizer capacitor C4. Adjust for curve of maximum amplitude and symmetry as per fig. 2.
5.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A7	Reconnect capacitor C4. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A5 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary.
If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A8. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct for any individual channel. If adjustment of A8 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency.
The channel adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120% in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (A). Low side to chassis.	A9	Adjust to place sound and Video markers as in fig. 4. Video marker should be at 50%.
			207 MC (10MC Swp)	205.25MC 209.75MC	12		A10	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A11	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A12	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A13	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A14	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A15	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A16	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A17	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A18	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A19	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A20	

TV ALIGNMENT INSTRUCTIONS (CONT.)

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RF AND MIXER ALIGNMENT

Connect 3 volt bias battery as under "Overall Video IF Response Check".

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 10KΩ to point ⟨D⟩. Low side to chassis.	A21, A22, A23.	Adjust for response curve similar to fig. 5. with markers above 90%.
8.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig. 5. If markers fall below 70% on any channel make slight compromise adjustments of A21, A22, A23 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75 MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

4.5MC TRAP ADJUSTMENT

Tune in a TV station and adjust the fine tuning control to the point where a 4.5 MC beat pattern is just visible in the picture. Adjust A24 for MINIMUM 4.5MC pattern.

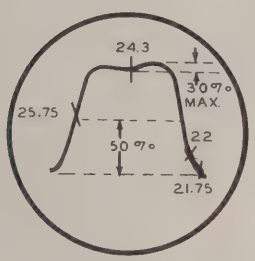


FIG.1

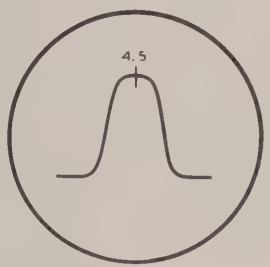


FIG. 2

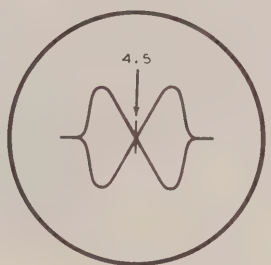


FIG. 3

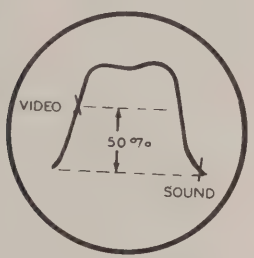


FIG.4

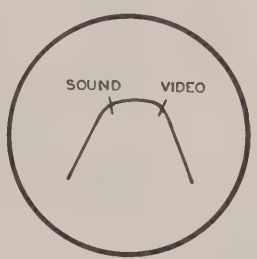


FIG. 5

RADIO ALIGNMENT INSTRUCTIONS

RADIO ALIGNMENT

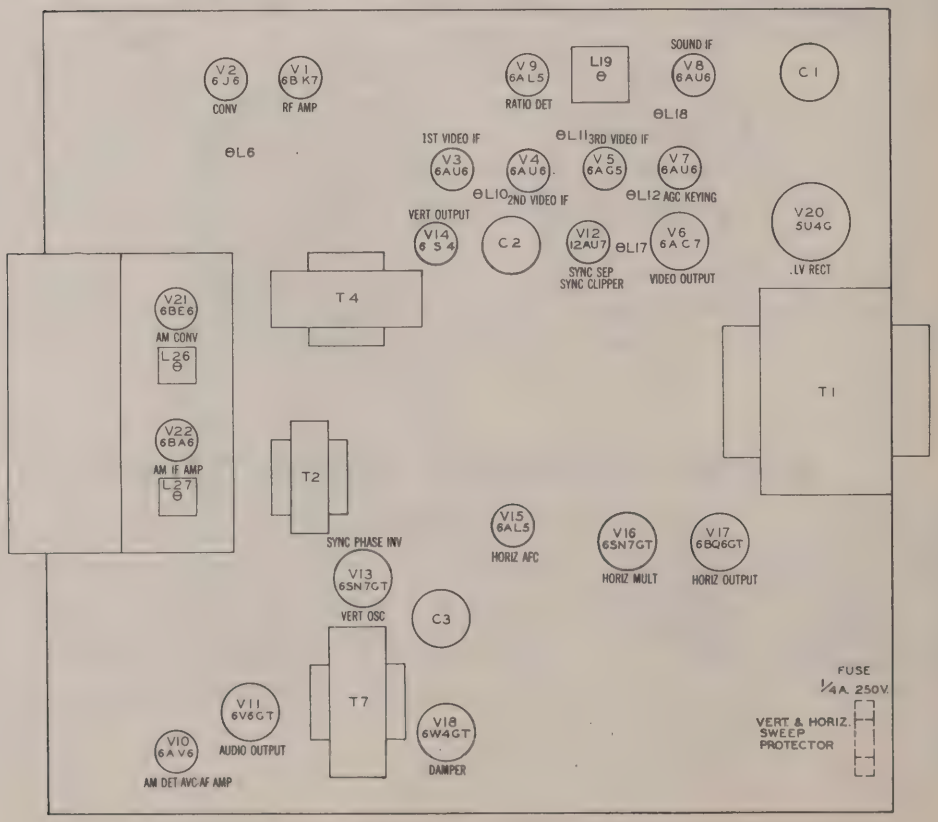
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screw-driver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	.01MFD	High side to stator plates of rear section of tuning gang. Low side to chassis.	455KC (400~Mod.)	AM	Tuning gang fully open	Across voice coil	A25, A26 A27, A28	Adjust for maximum output.
10.	"	"	1620 KC	"	"	"	A29	"
11.		Loop	1400 KC	"	Tune to 1400KC signal	"	A30	"

RESISTANCE MEASUREMENTS

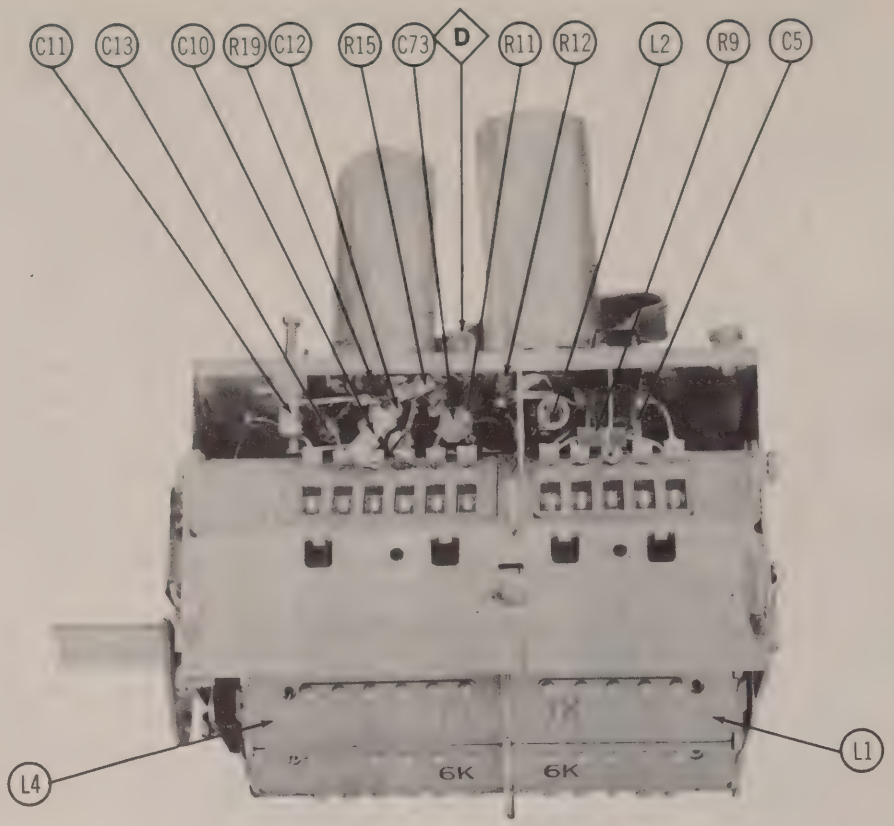
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	200KΩ	200KΩ	0Ω	.1Ω	0Ω	†1.2KΩ	100KΩ	200KΩ	0Ω
V 2	6J6	†12KΩ	†17KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6AU6	156KΩ	0Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	47Ω		
V 4	6AU6	150KΩ	0Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	68Ω		
V 5	6AG5	.4Ω	150Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	150Ω		
V 6	6AC7	0Ω	0Ω	100Ω	4.7KΩ	100Ω	†17KΩ	.1Ω	†6.8KΩ	
V 7	6AU6	†13KΩ	†2.1KΩ	.1Ω	0Ω	300KΩ	#8.2KΩ	†2.1KΩ		
V 8	6AU6	470KΩ	0Ω	.1Ω	0Ω	†3.1KΩ	†3.1KΩ	82Ω		
V 9	6AL5	10KΩ	10KΩ	0Ω	.1Ω	INF	0Ω	INF		
V 10	6AV6	4.7Meg	0Ω	0Ω	.1Ω	■1Meg	0Ω	†200KΩ		
V 11	6V6GT	INF	.1Ω	†535Ω	†2.1KΩ	1Meg	†47KΩ	0Ω	330Ω	
V 12	12AU7	12KΩ	2.2Meg	0Ω	.1Ω	.1Ω	†29KΩ	2.2Meg	0Ω	0Ω
V 13	6SN7GT	2Meg	#2.6Meg	0Ω	8.2Meg	†19KΩ	3.2KΩ	.1Ω	0Ω	
V 14	6S4	INF	1.3KΩ	1Meg	.1Ω	0Ω	1Meg	INF	INF	#2.2KΩ
V 15	6AL5	4.8Meg	4.8Meg	0Ω	.1Ω	12KΩ	0Ω	12KΩ		
V 16	6SN7GT	5.1Meg	#13KΩ	1.5KΩ	140KΩ	#160KΩ	1.5KΩ	.1Ω	0Ω	
V 17	6BQ6GT	1Meg	0Ω	INF	†7.1KΩ	1Meg	#13KΩ	.1Ω	47Ω	TOP CAP #47Ω
V 18	6W4GT	INF	INF	60KΩ	INF	†270Ω	INF	.1Ω	0Ω	
V 19	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								TOP CAP #367Ω
V 20	5U4G	INF	23KΩ	INF	14Ω	INF	16Ω	INF	23KΩ	
V 21	6BE6	22KΩ	.8Ω	■.1Ω	0Ω	■†5.5KΩ	■†15KΩ	■2Meg		
V 22	6BA6	■2Meg	0Ω	■.1Ω	0Ω	■†5.5KΩ	■†32KΩ	150Ω		
V 23	17BP4A	.1Ω	50KΩ	PIN 10 #830	PIN 11 250KΩ	PIN 12 0Ω				

ALL MEASUREMENTS TAKEN IN "TV" POSITION UNLESS NOTED
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V20
# MEASURED FROM PIN 3 OF V18
■ MEASURED IN "AM RADIO" POSITION

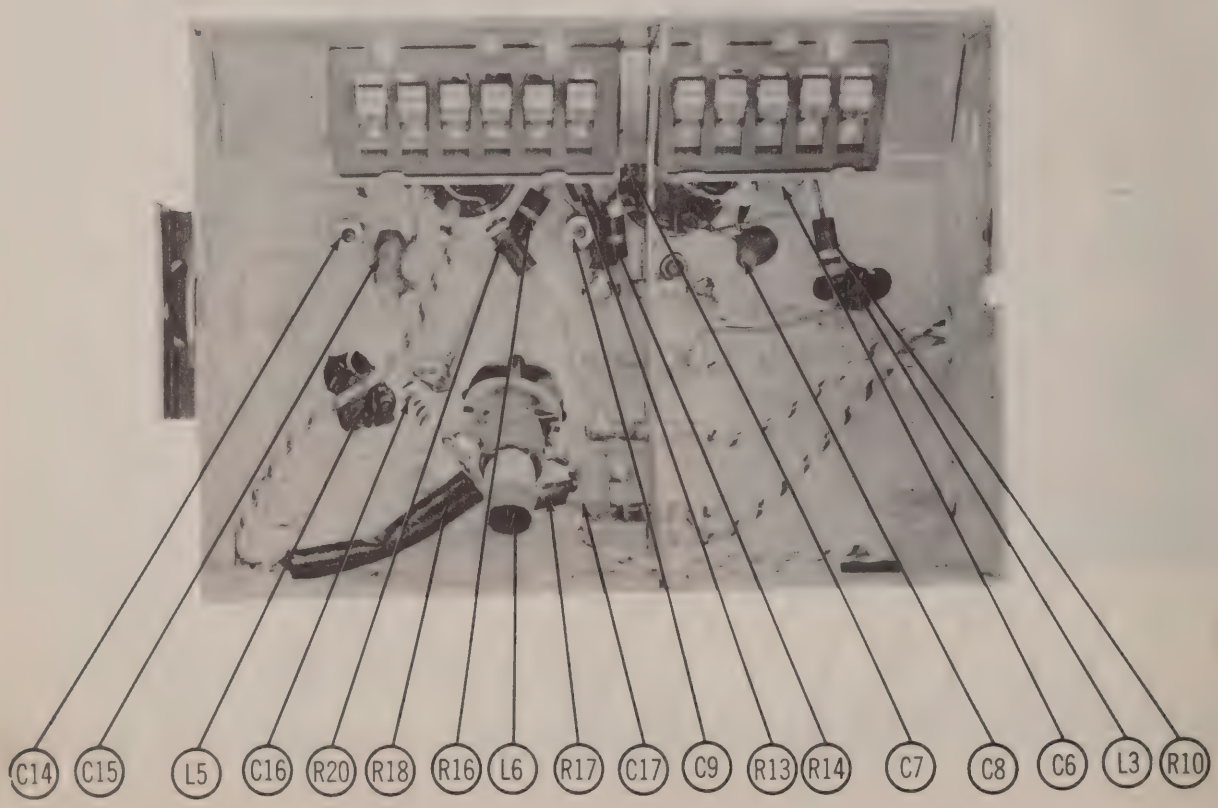


BOTTOM VIEW

TUBE PLACEMENT CHART

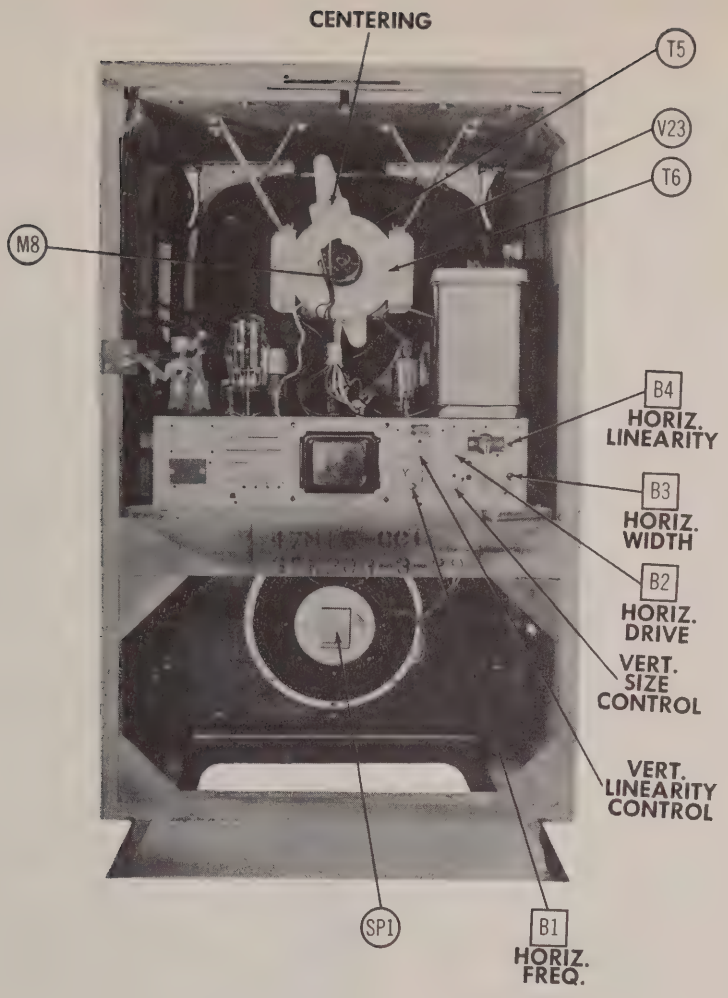


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PRO...
F. BLA...
3924 MEAD...
DENVER, COLORADO



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control fully clockwise.

If the picture is not in sync adjust the horizontal lock slug (B1) until the picture is in sync.

Adjust B1 counter clockwise until picture loses sync.. Then slowly turn B1 clockwise until picture just falls into sync.

Adjust the horizontal drive trimmer B2 as far as possible counter clockwise without producing white vertical lines in the picture. On some sets this adjustment may not produce white vertical lines in which case B2 should be set at maximum counter clockwise position while still maintaining slight tension on the trimmer plate.

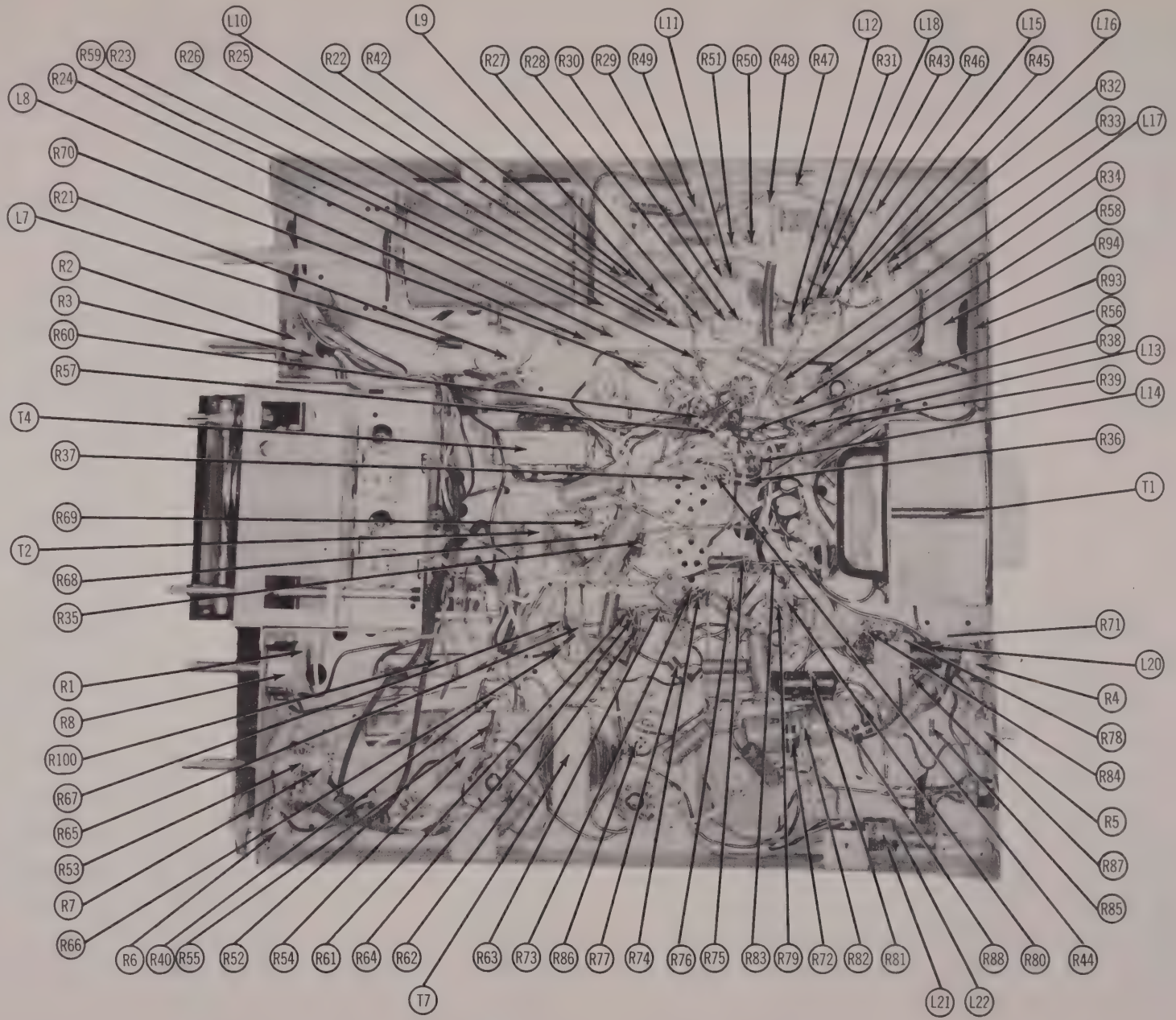
Adjust the width contrd slug (B3) for a picture slightly wider than enough to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 rush on type control knobs from front pannel.
2. Remove 4 wood screws and 2 staples. Remove back cover.
3. Disconnect speaker, focus and deflection plugs, antenna lead from antenna bracket on chassis, CRT socket, ground lead from HV cage and HV lead to CRT.
4. Remove 4 chassis bolts. Remove chassis.
5. Remove 4 speakers nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BK7	6BK7	9AJ	
B	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd. Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd. Video IF Amp.	6AG5	6AG5	7BD	
V6	Video Output	6AC7	6AC7	8N	
V7	AGC Keying	6AU6	6AU6	7BK	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AM Detector-AVC-AF Amplifier	6AV6	6AV6	7BT	
V11	Audio Output	6V6GT	6V6GT	7AC	
V12	Sync Separator - Sync Clipper	12AU7	12AU7	9A	
V13	Vert. Oscillator-Sync Phase Inv.	6SN7GT	6SN7GT	8BD	
V14	Vert. Output	6S4	6S4	9AC	
V15	Horiz. AFC	6AL5	6AL5	6BT	
V16	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V17A	Horiz. Output	6BQ6GT	6BQ6GT	6AM	Used in 21W1, and 21Z1A Chassis.
B	Horiz. Output	6CD6G	6CD6G	5BT	Used in 21Y1 Chassis.
V18	Damper	6W4GT	6W4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21	AM Converter	6BE6	6BE6	7CH	
V22	IF Amplifier	6BA6	6BA6	7BK	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V23A	17BP4A	17BP4A		12D	① Circuit changes necessary
		17BP4 ①		12D	
		17HP4 ①		12C	
		17RP4 ①		12C	
B	21EP4A	21EP4A		12D	Used only in chassis 21Y1
		21EP4 ①		12D	
		21FP4A		12C	
		21FP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	400	67C15-21	AFH3-46		UPT6245		FP447	TVL-2770	Note 7
B	■40	350				BR4035			TVA-1608	Note 7
C	▲20	350								Note 7
C2A	■80	350	67C15-18	AFH3-182		UPT315		FP235	TVL-3722	
B	▲20	450						TC3501		
C	▲100	50								
C3A	▲20	25	67C15-19	AFH3-125		UP1145C		FP345.2	TVL-3719	
B	■10	450								
C	10	25								
C4	4	50	67A4-9	PRS150/4		BR550		TC30	TVA-1303	
C5	2.2		94C37-97		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C6	3-9		98A45-96		829-10					
C7	800		94C37-91	BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C8	1000		98A45-24	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C9	.5-3		98A45-23		829-3			CT-565A		
C10	100		98A45-26	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C11	.5-3		98A45-23		829-3			CT-565A		
C12	20		98A45-27	SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C13	10		98A45-79	SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C14	.5-3		98A45-23		829-3			CT-563A		
C15	1000		67B6-41	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C16	10		98A45-64	SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C17	120		98A45-78	SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C18	120		65B1-10	SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C19	.47	200	64A10-1	P288-47		PJ2P5		PT405	2TM-P47	Note 5
C20A	4000		65A17-1	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C21A	1500		65A17-2	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C22	.47	100	64B9-35	P288-47		PJ2P5		PT405	2TM-P47	
C23A	1500		65A17-2	BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	1500									
C24	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C26A	4000		65A17-1	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C27	6.8		65C6-71	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C28	6.8		65C6-71	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	Note 6
C29	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	.1	400	64B5-20	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C31	.047	400	64B9-28	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C32	.047	600	64B8-9	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	Note 1
C33	6.8		65B6-71	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C34	20		65B6-51	SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C35	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C36	180		65B6-59							
C37	500		65B6-6	SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C38	.0022	600	64B9-17	P688-0022	D6-222	PTE6D22	GP2-333-202	PT6222	6TM-D22	Note 4
C39	.047	400	64B9-41	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C40	100		65C6-3	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C41	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C42	50		65B6-4	SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C43	.0047	600	64B9-12	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C44	.0022	200	64B9-14	P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C45	.47	400	64B8-72	484-5		PJ4P5		PT405	4TM-P5	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (CONT.)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	.01		†63B6-3	P688-01	†PC-177	PTE6S1	GP2-333-103	PT6U	6TM-S1	
C47	.0047	600	64B5-13	P688-0047	D6-473	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C48	150		♦63B6-4	SI150	♦PC-178	TM5T15	GP2K-151	UC-5315	5GA-T15	
C49	.047	400	64B9-28	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C50	.022	400	64B5-24	P488-022	DF-303			PT4122	4TM-S22	
C51	.01	400	64B5-25	P488-01	D6-103	PTE4S1	GP2-333-103	PT4U	4TM-S1	
C52A	.002		{ P688-002			PTE6D2	GP2-333-202	PT6Z3	{	
B	.005		♦63B6-2 { P688-005	♦PC-100	{	PTE6D5	GP2-333-502	PT625	♦101C1	
C	.005		P688-005 ♦			PTE6D5	GP2-333-502	PT625		
C53	4700	500	65B21-472	1464-005		1DR5D5		MCB465	MS-25	
C54	.1	600	64B5-5	PTE6P1	DF-104	PTE6P1		PT6U	6TM-P1	
C55	.047	600	64B6-9	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C56	1000	500	65B21-102	1468-001	D6-102	1WSD1	GP2L-102	MC255	1FM-21	
C57	1000	500	65B21-102	1468-001	D6-102	1WSD1	GP2L-102	MC255	1FM-21	
C58	.01	400	64B5-25	P488-01	D6-103	PTE4S1	GP2-333-103	PT4U	4TM-S1	
C59	.0047	600	64B9-15	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	Notes 2, 3
C60	.0047	600	64B5-12	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C61	.047	400	64B9-28	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C62	3900	500	65B1-63	1464-004		1DR5D4		MCB463		
C63	330	500	65B21-331	1469-00035						
C64	330	500	65B21-331	1469-00035						
C65	680	500	65B21-681	1479-0007		2R5T7			MS-37	
C66	.047	600	64B5-7	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C67	.05	200	64A2-8	P288-05		PJ2S5		PT4I5	2TM-S5	
C68	.02	400	64A2-9	P488-02		PTE4S2		PT4I2	4TM-S2	
C69	.25	600	64B5-3	684-25		PTE5P25		PT5025	6TM-P25	
C70	.0068	500	64A2-15	P688-0068		PTE6D68			6TM-D68	Note 1
C71	.1	400	64A2-10	P488-1	DF-104	PTE4P1		PT4U1	4TM-P1	
C72	500	30000	65B18-5	HV20C	TV3-502	MM-C20TS	413-501		20DK-T5	
C73	1000		94A45-34	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C74	.001	600	64B9-19	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C75	5	500	65B1-62							
C76	47		65B6-4	SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C77	.1	400	64B5-20	P488-1	DF-104	PTE4P1		PT4U1	4TM-P1	
C78	.1	200	64B5-30	P288-1	DF-104	PJ2P1		PT4U1	2TM-P1	
C79	.1	400	46B5-20	P488-1	DF-104	PTE4P1		PT4U1	4TM-P1	
C80	5000		65A10-1	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C81	100		65C6-3	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 1

Note 1. Not used in all models.
Note 2. Used only in chassis 21Y1 after Run 24.
Note 3. Some models may use .0022MFD in this application (Part #64B9- 11)
Note 4. Some models may use .001MFD in this application (Part #64B9-19)
Note 5. Component was 1000MMF (Part #65C6-41) in chassis stamped lower than Run 25.
Note 6. Not used in chassis prior to run 22.
Note 7. In some models C1B may be two 30MFD sections, C1C is separate output.
(G1 part no. becomes 67G-15-17) (C1C separate unit part no. is 67A21-1)
† Items C46, R54A, R54B, R54C are combined in one unit.
♦ Items C48, R37A, R37B are combined in one unit.
♦ Items C52A, C52B, C52C, R65A, R65B, R65C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	25KΩ	½	75B13-13	QU-120	AG-40-S	AB-26	U-29	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
R2A	100KΩ	½	75B13-12	QU-138	AG-49-S	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	75B13-14	QU-137	AG-61-S	AB-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	3000Ω	½	75B12-7	QU-112	AG-15-S	AB-8	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2.5Meg	½	75B13-3	QU-239	AG-84-S	AB-83-S	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	2Meg	½	75B1-50	PQU-139	AG-83-S	AB-75	U-56	Tone
B	Shaft		Not Req.	Not Req.	RS-3	AK-6	Not Req.	Attach to R6A
R7A	1500Ω	½	75B11-20	QJ-330*	RTV-327	SBBT-709-S	UF152R	Contrast-Panel
B	1Meg	½					UR16T35	Volume-Tapped ② 330KΩ-Rear
C	Switch		Not Req.				UB-26	Attach to R7B
R8	750Ω	2	75B13-16	WK-750L				Focus-Wire Wound

* CONCENTRIKIT EQUIVALENT - KIT K-2 BASE ELEMENTS & SHAFTS B17-110 & P1-126 (Panel), B15-137X & B2-212 (Gear) & SWITCH 70-1

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R9	22KΩ 20%	½	98A45-16		Antenna Coil Shunt
R10	47KΩ 20%	½	98A45-17	BTS-47K	RF Amp. Grid
R11	100KΩ 20%	½	94C37-87	BTS-100K	Voltage Divider
R12	220KΩ 20%	½	98A45-21		RF Amp. Grid
R13	1000Ω	½	94C37-86	BTS-1000	RF Amp. Plate Decoupling
R14	180KΩ	½	98A45-21	BTS-180K	Voltage Divider
R15	4700Ω	½	98A45-20	BTS-4700	Mixer Grid
R16	220KΩ 20%	½	98A45-21		Mixer Grid
R17	15KΩ	½	98A45-07		Mixer Plate
R18	10Ω	½	94C37-88		Parasitic Suppressor
R19	10KΩ	½	98A45-18	BTS-10K	Osc. Grid
R20	10KΩ	½	98A45-18	BTS-10K	Osc. Plate
R21	470Ω	½	60B8-471	BTS-470	Decoupling
R22	1000Ω	½	60B8-102	BTS-1000	AGC Network
R23	5100Ω 5%	½	60B7-512		1st. Video IF Amp. Grid - See Note 7
R24	47Ω	½	60B28-47		1st. Video IF Amp. Cathode
R25	1000Ω	½	60B8-102	BTS-1000	1st. Video IF Amp. Decoupling
R26	18KΩ	½	60B8-183		2nd. Video IF Coil Shunt
R27	68Ω	½	60B28-44		2nd. Video IF Amp. Cathode
R28	1000Ω	½	60B8-102	BTS-1000	2nd. Video IF Amp. Decoupling
R29	5100Ω 5%	½	60B7-512		3rd. Video IF Coil Shunt
R30	150Ω	½	60B8-151	BTS-150	3rd. Video IF Amp. Cathode
R31	1000Ω 20%	½	60B8-102	BTS-1000	3rd. Video IF Amp. Decoupling
R32	100KΩ 20%	½	60B8-104	BTS-100K	Series Test Point
R33	4700Ω 5%	½	60B7-472	BTS-4700 5%	Video Det. Load

RESISTORS (CONT.)

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ADMIRAL PART No.	IRC PART No.	IDENTIFICATION CODES
R34	270Ω	½	60B8-271	BTS-270	Video Output Cathode-See Note 8
R35	15KΩ	½	60B14-153	BTA-15K	Video Output Screen
R36	4700Ω	2	60B20-472	BTB-4700	Video Output Plate
R37A	18KΩ	½	†63B6-4 {	BTS-18K	Isolation
B	270KΩ	½	{	BTS-270K	Isolation
R38	470KΩ	½	60B8-474	BTS-470K	Video Peaking - See Note 11
R39	560KΩ	½	60B8-564	BTS-560K	Picture Tube Cathode
R40	100KΩ	½	60B8-104	BTS-100K	Picture Tube Grid
R41	22KΩ	½	60B8-223	BTS-22K	ACC, Anode Load - See Note 1
R42	150KΩ	½	60B8-154	BTS-150K	AGC Network
R43	270KΩ	½	60B8-274	BTS-270K	Keyed AGC Grid - See Note 5
R44	680KΩ	½	60B8-683	BTS-680K	Isolation
R45	470KΩ	½	60B8-474	BTS-470K	Sound IF Amp. Grid
R46	82Ω	½	60B28-31	BTS-82Ω	Sound IF Amp. Cathode
R47	1000Ω	½	60B8-102	BTS-1000	Sound IF Amp. Cathode
R48	390Ω	½	60B8-391	BTS-390	Balancing
R49	47KΩ	½	60B8-473	BTS-47K	De-emphasis
R50	10KΩ 5%	½	60B7-103	BTS-10K 5%	Ratio Det. Diode Load
R51	10KΩ 5%	½	60B7-103	BTS-10K 5%	Ratio Det. Diode Load
R52	4.7Meg	½	60B8-475	BTS-4.7Meg	AF Amp. Grid
R53	82KΩ	½	60B8-823	BTS-82K	Tone Compensation
R54A	150KΩ	½	{	BTS-150K	AF Amp. Plate
B	47KΩ	½	†63B6-3 {	BTS-47K	AF Amp. Plate Decoupling
C	1Meg	½	{	BTS-1Meg	Output Grid
R55	330Ω	1	60B14-331	BTA-330	Output Cathode
R56	2.2Meg	½	60B8-225	BTS-2.2Meg	Sync Separator Grid
R57	33KΩ	2	60B20-333	BTB-33K	Sync Separator Plate - See Note 6
R58	18KΩ	1	60B14-183	BTA-18K	Voltage Divider
R59	2.2Meg	½	60B8-225	BTS-2.2Meg	Sync Clipper Grid
R60	27KΩ	2	60B20-273	BTB-27K	Sync Clipper Plate
R61	8.2Meg	½	60B8-825	BTS-8.2Meg	Sync Phase Inv. Grid
R62	1000Ω	½	60B8-102	BTS-1000	Sync Phase Inv. Cathode
R63	2200Ω	½	60B8-222	BTS-2200	Sync Phase Inv. Cathode
R64	2200Ω	½	60B8-222	BTS-2200	Sync Phase Inv. Plate
R65A	22KΩ	½	{	BTS-22K	Integrator Network
B	8200Ω	½	♦53B6-2 {	BTS-8200	Integrator Network
C	8200Ω	½	{	BTS-8200	Integrator Network
R66	150KΩ	½	60B8-154	BTS-150K	Vert. Osc. Grid
R67	1.2Meg	½	60B8-125	BTS-1.2Meg	Vert. Osc. Grid
R68	1Meg	½	60B8-105	BTS-1Meg	Vert. Osc. Plate
R69	10KΩ 5%	½	60B7-103	BTS-10K 5%	Vert. Peaking - See Note 10
R70	1Meg	½	60B8-105	BTS-1Meg	Vert. Output Grid
R71	820Ω	½	60B8-821	BTS-820	Vert. Output Cathode
R72	820Ω	2	60B20-821	BTB-820	Vert. Output Decoupling
R73	100KΩ 5%	½	60B7-104	BTS-100K 5%	Horiz. AFC Diode Load
R74	100KΩ 5%	½	60B7-104	BTS-100K 5%	Horiz. AFC Diode Load
R75	4.7Meg	½	60B8-475	BTS-4.7Meg	Horiz. AFC Diode Load
R76	470KΩ	½	60B8-474	BTS-470K	Horiz. AFC Filter
R77	12KΩ	2	60B20-123	BTB-12K	Horiz. Feedback
R78	5600Ω	½	60B8-562	BTS-5600	Horiz. MV Plate
R79	1500Ω	½	60B8-152	BTS-1500	Horiz. MV Cathode
R80	120KΩ	½	60B8-124	BTS-120K	Horiz. MV Grid
R81	150KΩ	½	60B8-154	BTS-150K	Horiz. MV Plate
R82	8200Ω	1	60B14-822	BTA-8200	Horiz. MV Decoupling
R83	8200Ω	½	60B8-822	BTS-8200	Horiz. Peaking
R84	68Ω	½	60B28-44		Parasitic Suppressor
R85	1Meg	½	60B8-105	BTS-1Meg	Horiz. Output Grid - See Note 3
R86	47Ω	1	60B28-45	BW-1-47	Horiz. Output Cathode
R87	82Ω	½	60B28-31		Parasitic Suppressor
R88	6800Ω	2	60B20-682	BTB-6800	Horiz. Output Screen
R89	3300Ω	2	60B20-332	BTB-3300	Horiz. Output Screen - See Note 2
R90	680Ω	2	60B20-681	BTB-680	Anti-ringing Coil Shunt
R91	2.7Ω	½	60B28-47		HV Rectifier Filament
R92	470KΩ	1	60B28-43		HV Filter
R93	3000Ω	15	61A3-14	2D-3000	Decoupling - Wire Wound
R94	7500Ω	5	61A1-18	1 3/4A-7500	Decoupling - Wire Wound
R95	150KΩ	½	60B8-154	BTS-150K	AGC Network
R96	270KΩ	1	60B14-274	BTA-270K	Line Isolation - See Note 1
R97	1000Ω	½	60B8-102	BTS-1000	AGC Network - See Note 4
R98	4700Ω	½	60B8-472	BTS-4700	Video Peaking Coil Shunt - See Note 9
R99	4.7Ω	½			Series Dial Light - See Note 12
R100	5300Ω	5	61A3-16	1 3/4A-5000	Decoupling - Wire Wound
R101	22KΩ	½	60B8-223	BTS-22K	Osc. Grid
R102	10KΩ	1	60B14-103	BTA-10K	Osc. Anode
R103	150Ω	½	60B8-151	BTS-150	IF Amp. Cathode
R104	27KΩ	1	60B14-273	BTA-27K	IF Amp. Screen
R105	1Meg	½	60B8-105	BTS-1Meg	AVC Network

Note 1. Not used in all models.
Note 2. Used only when V17 is a 6CD6G, R88 is changed to 3300Ω (2Watt).
Note 3. Chassis 21Y1 stamped lower than Run 21 use a 470KΩ resistor in this application
Note 4. Used only in chassis stamped lower than Run 25
Note 5. Chassis stamped lower than Run 25 use a 220KΩ resistor in this application
Note 6. Chassis stamped lower than Run 25 use a 39KΩ resistor in this application
Note 7. Early production models use a 10KΩ resistor in this application (part #60B7-103)
Note 8. Early production models use a 470Ω resistor in this application (part #60B8-471)
Note 9. Not used in chassis stamped lower than Run 22
Note 10. Models using a 17" pict ure tube use a 8200Ω resistor in this application.
Note 11. Early production models use a 560KΩ resistor in this application
Note 12. Used only in chassis 21Z1A
† Items R37A, R37B & C48 are combined in one unit.
† Items R54A, R54B, R54C & C46 are combined in one unit.
♦ Items R65A, R65B, R65C, C52A, C52B, C52C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	580VCT	5VAC	6.3VAC	80C26-1	P-8164	P-3077	TP-225	R-39BC ①
	② 1.85A	.225ADC	③ 3A	④ 9A					

① Drill new mtg. holes

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	190Ω	1060Ω	7A16-4	A-8125	A-3000 ① HVO-7 ①	TBO-2 ②	A-97X ①	Vert. Osc. Trans Horiz. Output Trans.
T3	355Ω Tap ④ 35Ω	3.6Ω		A-8134				
		SEC. 2 1.4Ω						
		SEC. 3 0Ω						
T4	1390Ω	10.2Ω	79B30-1	A-8112 ①	A-3036 ①	TSO-5 ①	A-99X ①	Vert. Output Trans.
T5A	16Ω		79B40-1 ③ 94C30-3	Dy-8	MDF-70	TY-2	Y-17	Horiz. Deflection Coils
B	47Ω		94C30-1 ④					Vert. Deflection Coils
T6	270Ω		69C117-9					Focus Coil
	Tap ⑤ 90Ω		69C117-3 ⑤					

① Drill new mtg. holes
② Mount on top of chassis.
③ Alternate Vert. Output Trans.
④ Alternate deflection yoke used with 17" and 20" picture tubes which mount on chassis.
⑤ Alternate focus coil used in Chassis 21Y1, 21Z1, 21Z1A

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.	RATING IMPEDANCE SEC.	RATING DC RES. PRI.	RATING DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T7	5KΩ	3.5Ω	275Ω	.5Ω	79C33-2	A-3877 ①	A-3019 ①	RO-9	S-5X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA ADMIRAL PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	10"	PM	3.5Ω	78B47-2	ST-119 Mod. P10-T	10A4A	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA ADMIRAL PART No.	MERIT PART No.	NOTES
L1	Ant. Coil	0Ω		94C37-52		Channel #2
L2	RF Choke	0Ω		94C37-89		
L3	Fil. Choke	0Ω		98A45-13		
L4	RF, Mixer Grid & Osc. Coils	0Ω		94C37-72		Channel #2
L5	Fil. Choke	0Ω		98A-45-14		
L6	1st. Video IF	.8Ω		98A-45-77		
L7	Fil. Choke	0Ω		73A2-5		
L8	Adj. Channel Sound Trap	0Ω		72A102		
L9	Fil. Choke	0Ω		73A2-5		
L10	2nd. Video IF	.4Ω	.4Ω	72C96-14		
L11	3rd. Video IF	.4Ω	.4Ω	72C96-14		
L12	4th. Video IF	.4Ω	.4Ω	72C96-14		
L13	Peaking Coil	6.4Ω		73A5-14	*TV-185	Blue Dot, 250 Microhenries, Wound on 18KΩ resistor, Chassis stamped lower than Run 22 Use coil part #73A5-13, white dot, wound on 33KΩ resistor
L14	Peaking Coil	22.2Ω		73A11-1	†TV-186	Wound on 10KΩ resistor. Chassis stamped lower than Run 22. Use Coil part #73A5-9
L15	Peaking Coil	5.3Ω		73A5-15	*TV-181	Wound on 4.7KΩ resistor. 4.7KΩ resistor was not used in early sets.
L16	Peaking Coil	17Ω		73A5-7	TV-188	500 Microhenries
L17	4.5MC Trap	4.8Ω		72B99-3	TV-151	Includes C28, not used in chassis stamped lower than Run 22
L18	Sound IF	6.2Ω		72B99-4	TV-151	
L19	Ratio Det.	3.8Ω	.3ΩCT	72B68	TV-110	Tertiary Winding .6Ω
L20	Horiz. Osc.	58Ω		94A17	TV-163	Includes R78 and C62
L21	Width Coil	10Ω		94A39-1		Early sets used 2 termiwal coil part #94A39-1
L22	Horiz. Lin.	12.5Ω		94A28		Tap ④ 7.5Ω
L23	Plate Choke			73B8-2		Used only in chassis 21Y1 stamped Run 24 or higher
L24	Loop Ant.	.2Ω		69C152-1		
L25	Osc. Coil	6Ω		69A52-1		Tap ④ .8Ω
L26	Input IF	20Ω	20Ω	72B26-7	BC-352	
L27	Output IF	20Ω	20Ω	72B26-7	BC-353	

* Parallel with 18KΩ resistor
♦ Parallel with 4.7KΩ resistor
† Parallel with 10KΩ resistor

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA ADMIRAL PART No. FUSE	ADMIRAL PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	8AG	1/4 A. 250V.	84A4-2	84A5-1	362.250	387001	AGX 1/4	4520

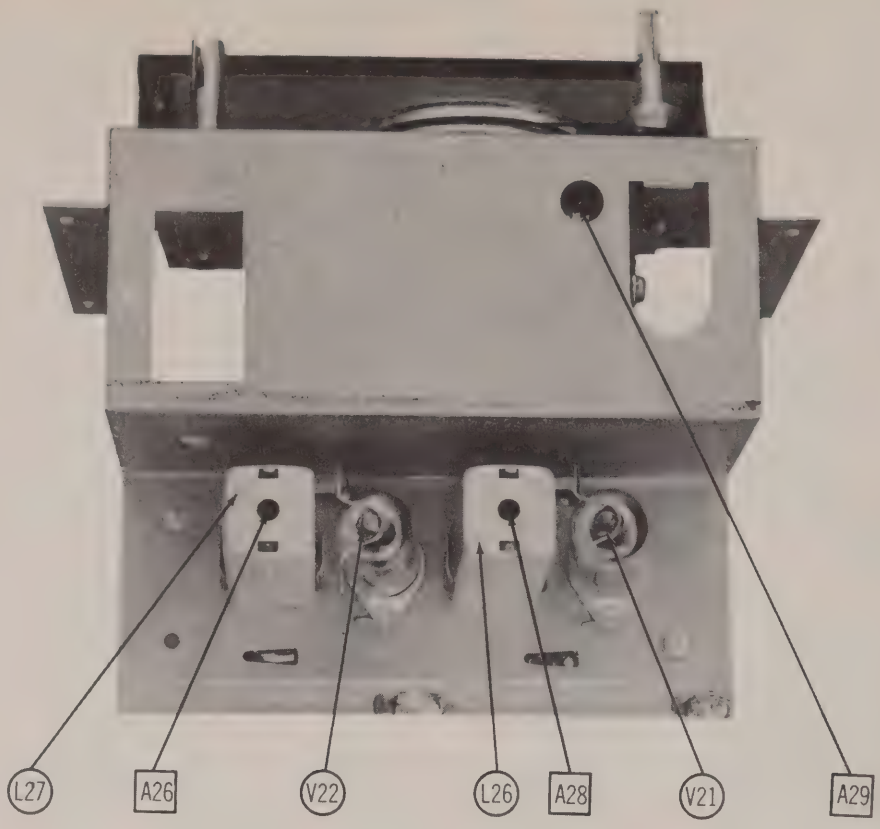
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA ADMIRAL PART No.	NOTES
M2	Bayonet	6-8	.15	Brown	81A1-8	Type #47
M3	Bayonet	6-8	.15	Brown	81A1-8	Type #47

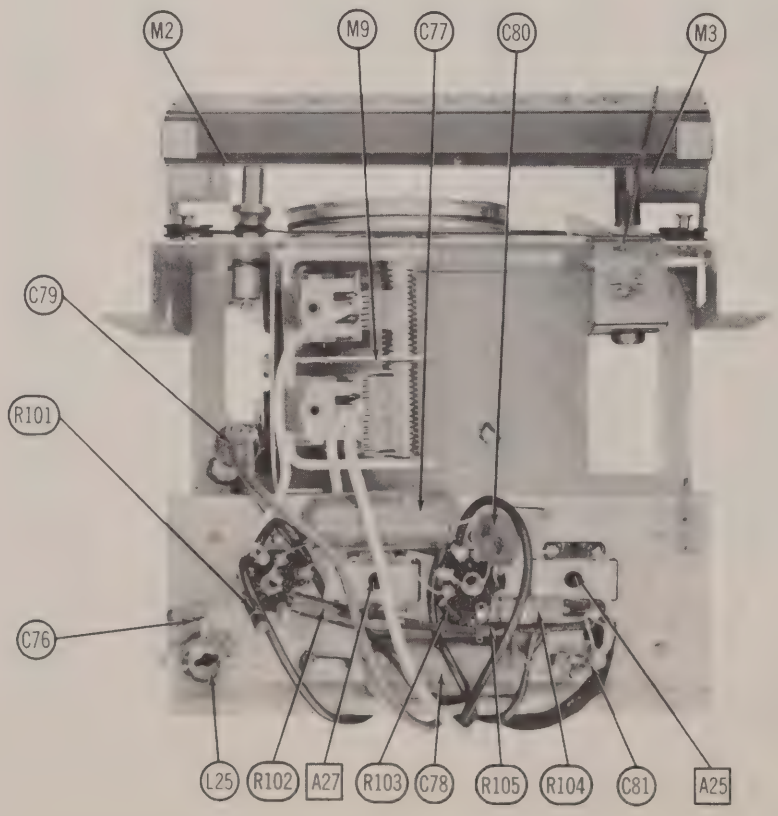
PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	RF Tuner	94C37-1	
M5	Crystal		1N64
M6A	Switch	77B40	Function (TV-Radio-Phono)
B	Switch	77B39-1	Alternate (TV-Radio-Phono)
C	Switch	77B39	Alternate (TV-Radio -Phono)
M7A	Switch	77B39-16	Phono Motor (on/off)
B	Switch	77B39-15	Alternate
C	Switch	77B39-14	Alternate
M8	Ion Trap	94A15-2	
M9	Tuning Cap	68B49	For Radio (30-460MMF, 18-164MMF)
B2	Trimmer	66A30-1	Horiz. Drive (20-280MMF)
	Ant. Coil	94C37-53	Channel #3
	Ant. Coil	94C37-54	Channel #4
	Ant. Coil	94C37-55	Channel #5
	Ant. Coil	94C37-56	Channel #6
	Ant. Coil	94C37-57	Channel #7
	Ant. Coil	94C37-58	Channel #8
	Ant. Coil	94C37-59	Channel #9
	Ant. Coil	94C37-60	Channel #10
	Ant. Coil	94C37-61	Channel#11
	Ant. Coil	94C37-62	Channel #12
	Ant. Coil	94C37-63	Channel #13
	RF, Mixer Grid & Osc. Coil	94C37-73	Channel #3
	RF, Mixer Grid & Osc. Coil	94C37-74	Channel #4
	RF, Mixer Grid & Osc. Coil	94C37-75	Channel 5
	RF, Mixer Grid & Osc. Coil	94C37-76	Channel 6
	RF, Mixer Grid & Osc. Coil	94C37-77	Channel 7
	RF, Mixer Grid & Osc. Coil	94C37-78	Channel #8
	RF, Mixer Grid & Osc. Coil	94C37-79	Channel #9
	RF, Mixer Grid & Osc. Coil	94C37-80	Channel #10
	RF, Mixer Grid & Osc. Coil	94C37-81	Channel #11
	RF, Mixer Grid & Osc. Coil	94C37-82	Channel #12
	RF, Mixer Grid & Osc. Coil	94C37-83	Channel #13
	Knob	33C53-9	Channel Selector (with gold inserts) (Maroon)
	Knob	33C53-5	Channel Selector (less inserts) (Maroon)
	Knob	33C53-10	Fine Tuning (Maroon)
	Knob	33C53-11	Off/On Volume (with gold inserts) (Maroon)
	Knob	33C53-7	Off/On Volume (less inserts) (Maroon)
	Knob	33C53-12	Contrast (Maroon)
	Knob	33C53-13	Channel Selector (With gold inserts) (Ebony)
	Knob	33C53-1	Channel Selector (less inserts) (Ebony)
	Knob	33C53-2	Fine Tuning (Ebony)
	Knob	33C53-15	Off/On Volume (with gold inserts) (Ebony)
	Knob	33C53-3	Off/On Volume (less inserts) (Ebony)
	Knob	33C53-4	Contrast (Ebony)
	Knob	33C53-17G	Channel Selector (with gold inserts) (Brown)
	Knob	33C53-17	Channel Selector (less inserts) (Brown)
	Knob	33C53-18	Fine Tuning (Brown)
	Knob	33C53-19G	Off/On Volume (with gold inserts) (Brown)
	Knob	33C53-19	Off/On Volume (less inserts) (Brown)
	Knob	33C53-20	Contrast
	Knob	33C83-1	Radio Tuning (with gold cap) (Maroon)
	Knob	33D55-36	Tone (Maroon)
	Knob	33C83-2	TV-Radio & Phono (with gold cap) (Maroon)
	Knob	33C83-3	Radio Tuning (with gold cap) (Ebony)
	Knob	33D55-39	Tone (Ebony)
	Knob	33C83-4	TV-Radio & Phono (with gold cap) (Ebony)
	Knob	33C83-7	Radio Tuning (less gold cap) (Brown)
	Knob	33D55-45	Tone (Brown)
	Knob	33C83-8	TV-Radio & Phono (less gold Cap) (Brown)
	Knob Spring	18A43-3	Channel Selector
	Knob Spring	18A43-1	Fine Tuning
	Knob Spring	18A43-2	Off/on Volume
	Felt washer	5A4-14	Channel Selector & Contrast
	Felt washer	5A4-11	Radio Control Knobs
	Back Cover	A3631	Models 47M15, -16, -17
	Window Glass	21B49-19	Less frame, Models 47M15, -16, -17
	Mask	23D116	Plastic Models 47M15, -16, -17
	Back Cover	A3608	Models 321M25, 26, 27, 421M15, 16, 521M15, 16, 17
	Window Glass	21B49-16	Less frame Models 321M25, 26, 27, 421M15, 16, 521M15, 16, 17
	Mask	23D115	Plastic Models 321M25, 26, 27, 421M15, 16, 521M15, 16, 17
	Back Cover	A3696	Models 37M25, 26, 27, 57M16, 17
	Back Cover	A3702	Models 47M15A
	Back Cover	A3695	Models 47M35, 36, 37
	Back Cover	A3424	Models 57M10, 11, 12
	Window Glass	21B49-24	Models 57M10, 11, 12
	Mask	23D122	Metal (Models 57M10, 11, 12)
	Window	23C118-1	Radio Dial (Models 57M10, 11, 12)
	Back Cover	A3695	Models 47M35, 36, 37
	Back VCover	A3696	Models 57M16, 17, 37M25, 26, 27
	Window	21B62-5	Models 47M35, 36, 37, 47M15A
	Window	21B62-1	Models 57M16, 17, 37M25, 26, 27
	Back Cover	A3702	Model 47M15A

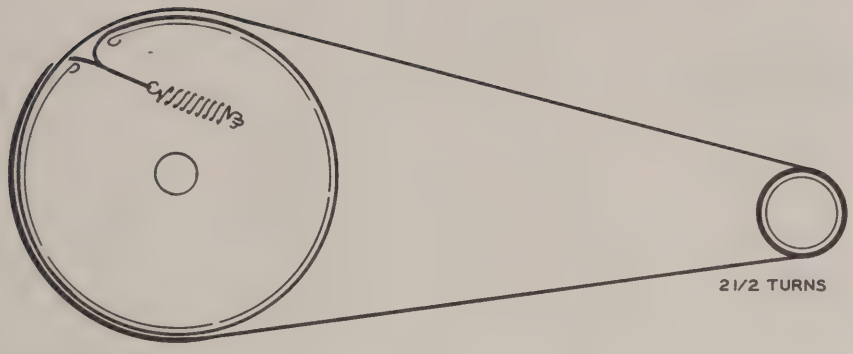


RADIO CHASSIS-TOP VIEW



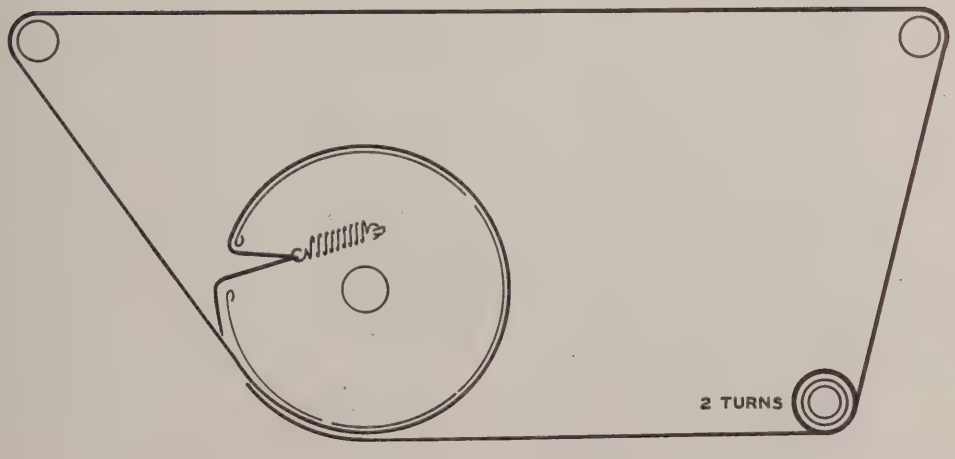
RADIO CHASSIS-BOTTOM VIEW

TONE CONTROL FULLY TO THE LEFT



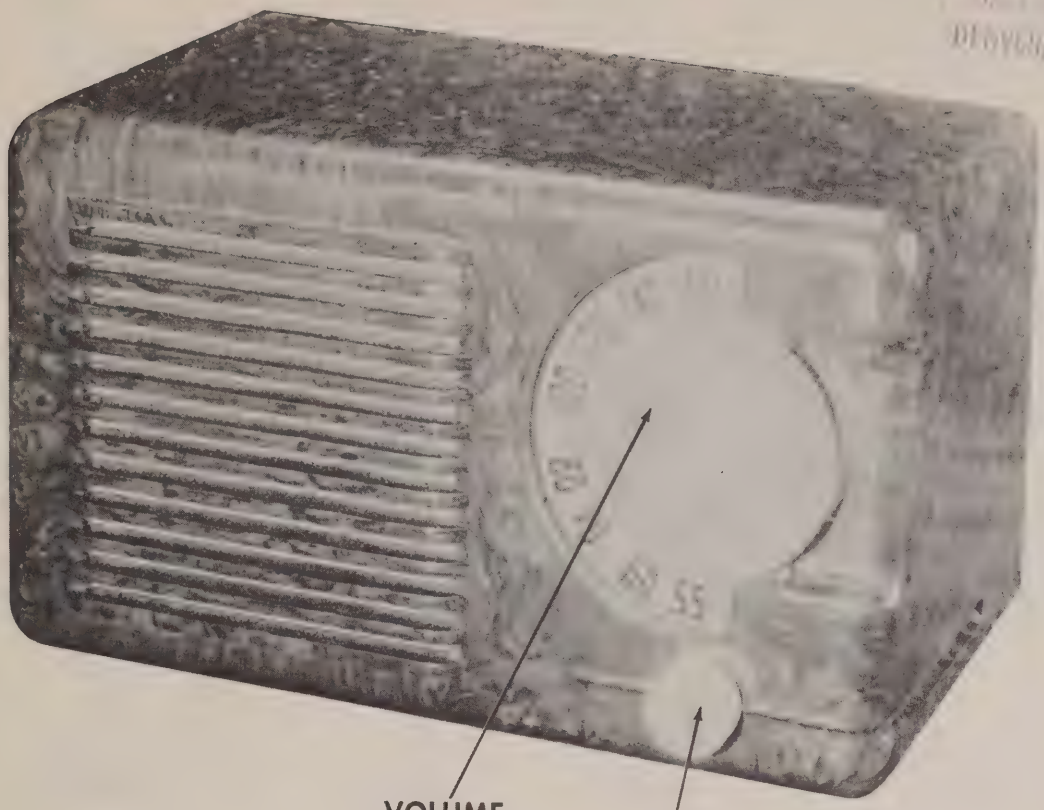
TONE CONTROL DRIVE CORD STRINGING

TUNING CANG FULLY CLOSED



RADIO DIAL CORD STRINGING

AIRCASTLE
MODEL 607.299



AIRCASTLE
MODEL 607.299

TRADE NAME	Aircastle Model 607.299
SUPPLIER	Spiegel Inc., 1061 W. 35th. St., Chicago 9, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Four)	Types 12AU6 Conv., 12AV6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC/DC RATING .23 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator to B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (grid) of 12AU6 (V1) Low side to B-.	455 KC (400~Mod.)	Tuning gang fully open	Across Voice Coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620 KC	"	"	A3	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

After alignment replace receiver in cabinet, turn tuning gang fully closed, and set pointer to point straight down, perpendicular to base of cabinet.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

AIRCASTLE MODEL 607.299

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	12AU6	12AU6	7BK	
V2	Det.-AVC-AF Amp	12AV6	12AV6	7BT	
V3	Audio Output	50C5	50C5	7CV	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	150	N-7153	PRS150/40-20-20		EDL4215C		TN129	TVA-3423	
B	20	150								
C	20	15								
C2	50		N-6385	SI50	D6-500	TM5Q5	GP1K-500	UC-545	5GA-Q5	
C3	100		N-6015	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C4	.003	600	N-2063	P688-003	D6-302	PTE6D3	GP2-333-302	PT623	6TM-D3	
C5 A	5000									Note 1
B	250				♦PC-71				♦104C5	Note 1
C										Note 1
C6	.01	400	N-1344	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C7	.05	400	N-1346	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C8	.05	200	N-1345	P288-05	DF-503	PJ2P5		PT415	2TM-S5	

♦ Items C5A, C5B, C5C, R4A, R4B are combined in one unit.
Note 1. Some models use separate items (C5A) .01MFD, (C5B) 100MMF (C5C) not used.

CONTROLS

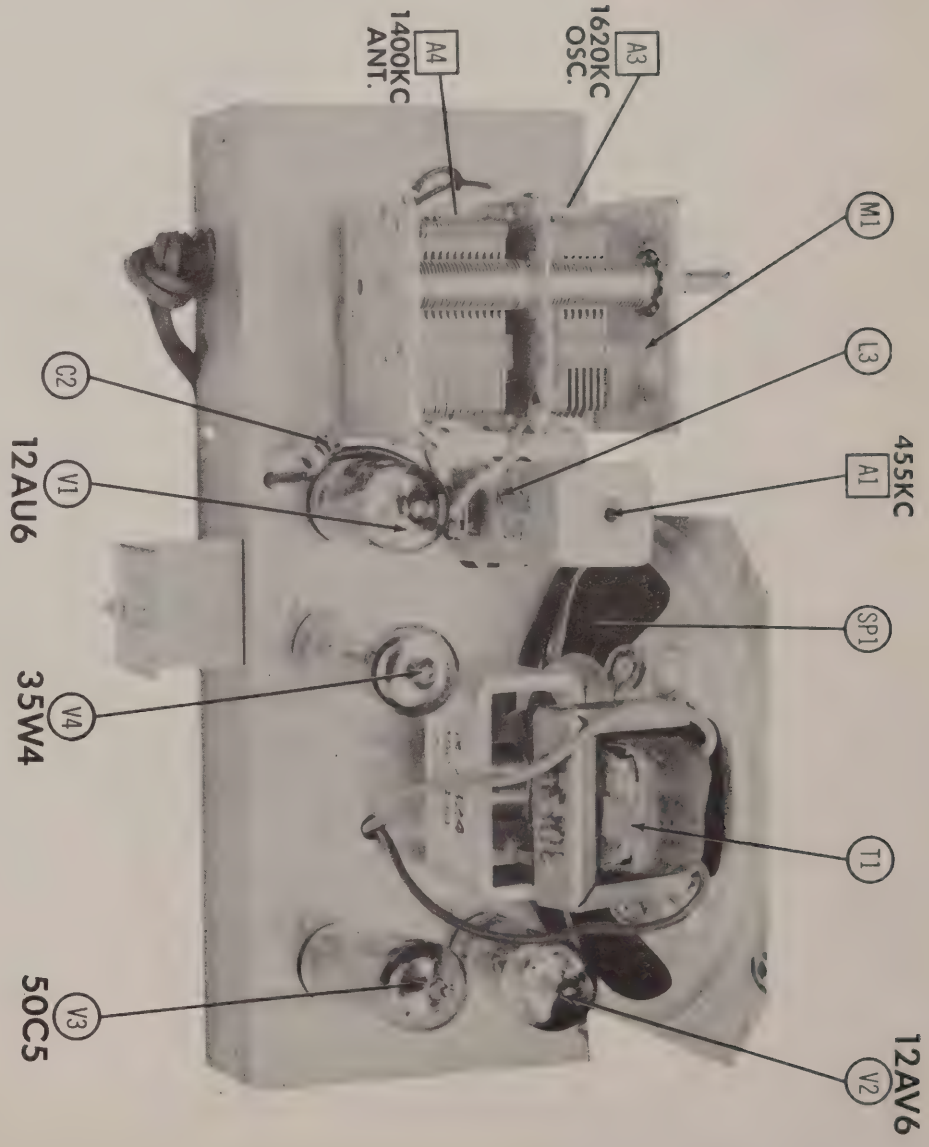
ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	2Meg	½	N-7142	Q13-139	AG-66-Z	AB-75	U-55	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	KB-1	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
R2	2.2Meg	½	N-4277	BTS-2.2Meg	Osc. Grid
R3	6.8Meg	½	N-4028	BTS-6.8Meg	AF Amp. Grid
R4A	250KΩ	½	♦		AF Amp. Plate - See Note
B	500KΩ	½			Output Grid - See Note
R5	180Ω	½	N-4067	BTS-180	Output Cathode
R6	2200Ω	½	N-4896	BTS-2200	Filter
R7	68Ω	2	N-6014		Filament Dropping

♦ Items R4A, R4B, C5A, C5B, C5C are combined in one unit.
Note. Some models use separate items (R4A) 330KΩ, (R4B) 470KΩ.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	26KΩ	5.7Ω	315Ω	.7Ω	Part of Spkr.	A-3332	A-2928 ①	RO-2 ①	S-IX ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.7Ω	N-7824	ST-113 Mod. P4-X	4A07	

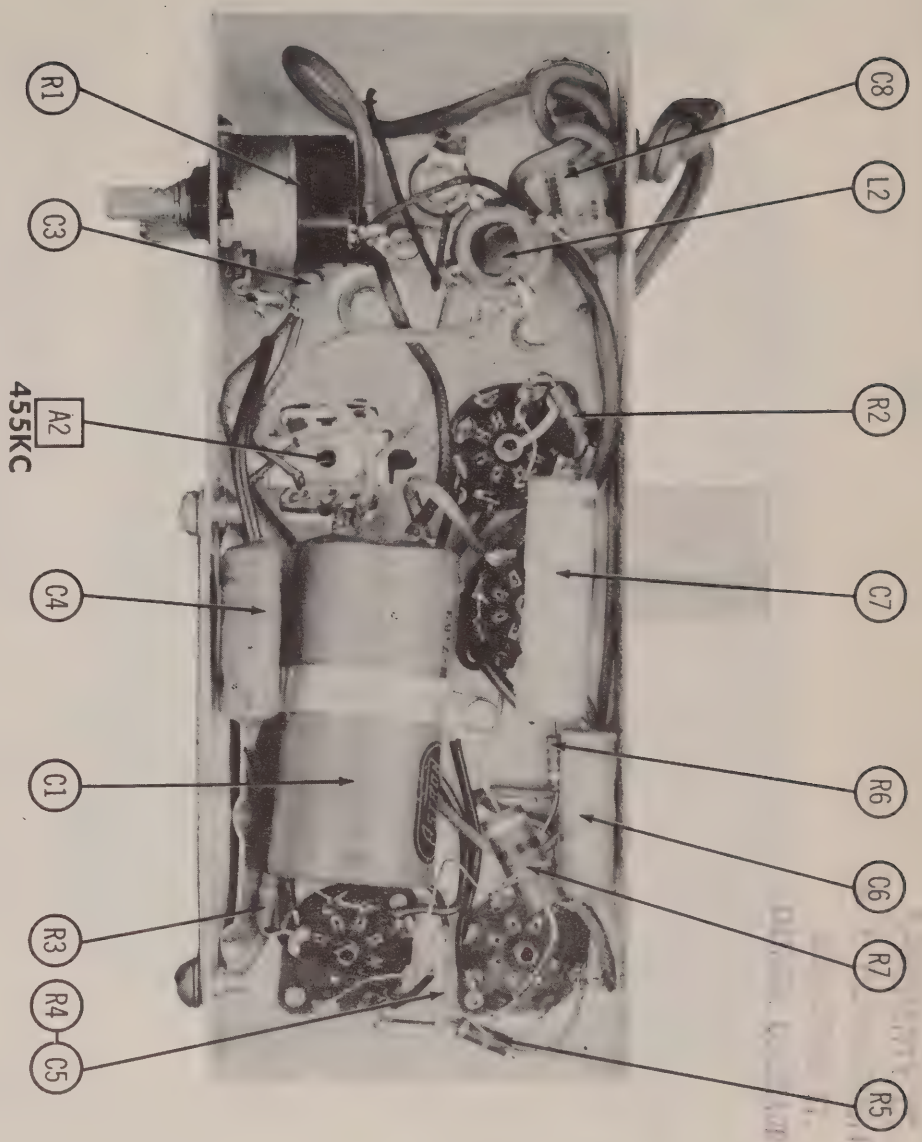
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	AIRCASTLE PART No.	MERIT PART No.	
L1	Loop Ant.	2Ω		N-7670		
L2	Osc. Coil	.8Ω	7.4Ω	N-7725		Tertiary Winding in series with Plate Supply of Conv. Tube, 2.4Ω
L3	IF Trans.	30Ω	30Ω	N-7694		Tap ⓐ .8Ω

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M1	2 Gang Var. Cap.	N-7141	(18-397MMF, 18-153MMF)
	Cabinet	299	Walnut- Plastic
	Knob	N-1270	Tuning
	Knob	N-7826	Volume

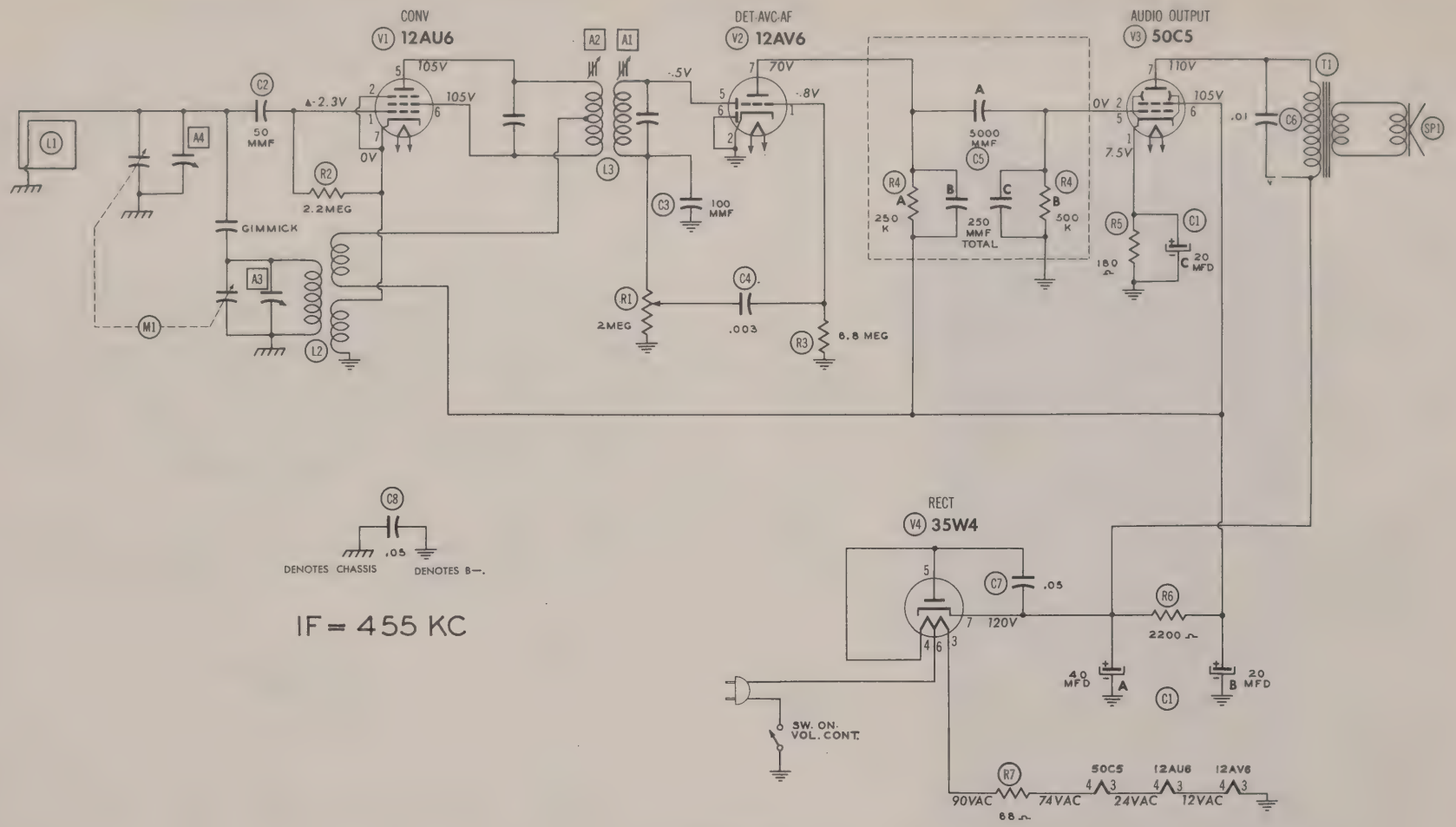
CHASSIS—BOTTOM VIEW



SET 177 FOLDER 3

AIRCASTLE MODEL 607.299

AIRCASTLE MODEL 607.299



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12AU6	2.2Meg	.8Ω	12Ω	24Ω	†2.2KΩ	†2.2KΩ	.8Ω
V 2	12AV6	6.8Meg	0Ω	0Ω	12Ω	2Meg	0Ω	†250KΩ
V 3	50C5	180Ω	500KΩ	74Ω	24Ω	500KΩ	†2.2KΩ	†315Ω
V 4	35W4	INF	†0Ω	142Ω	177Ω	177Ω	160Ω	30KΩ

† MEASURED FROM PIN 7 OF V4.
▲ TAKEN WITH VACUUM TUBE VOLTMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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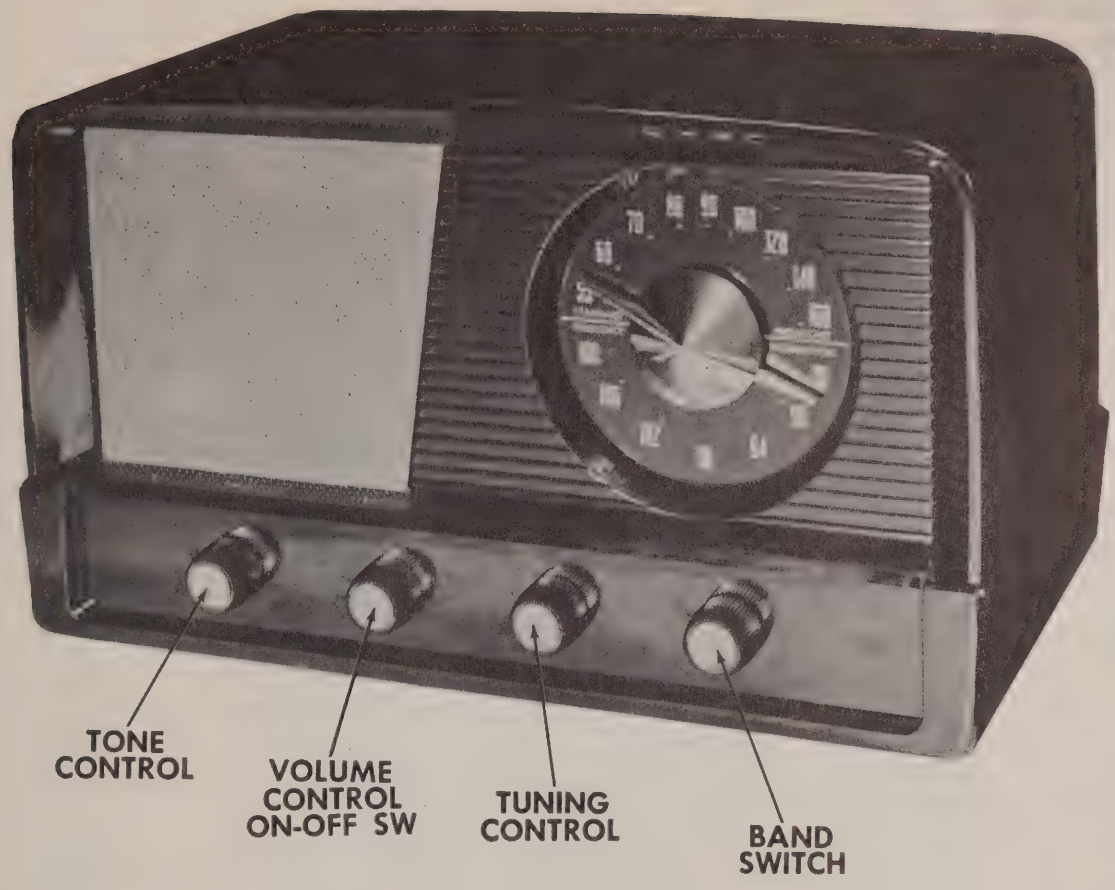
177-3

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE MODELS 25WG-1570A, B, C,
25WG-1571A, B, 25WG-1572A, B



AIRLINE MODELS 25WG-1570A, B, C,
25WG-1571A, B, 25WG-1572A, B

TRADE NAME	Airline Models 25WG-1570A, B, C, 25WG-1571A, B, 25WG-1572A, B		
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Ill.		
TYPE SET	AC Operated AM-FM Superheterodyne Receiver.		
TUBES (EIGHT)	Types 12AT7 FM RF Amp.-FM Mixer, 6BE6 FM Osc.-AM Conv., 6BA6 1st. FM-AM IF Amp., 6BA6 2nd. FM Amp., 6AL5 Ratio Det., 6AU6 Det.-AVC-AF Amp. 6V6GT Audio Output, 6X5GT Rectifier.		
POWER SUPPLY	105-125 Volts AC-50/60 Cycles	RATING	.37Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC	FREQ.MOD.	88-108MC

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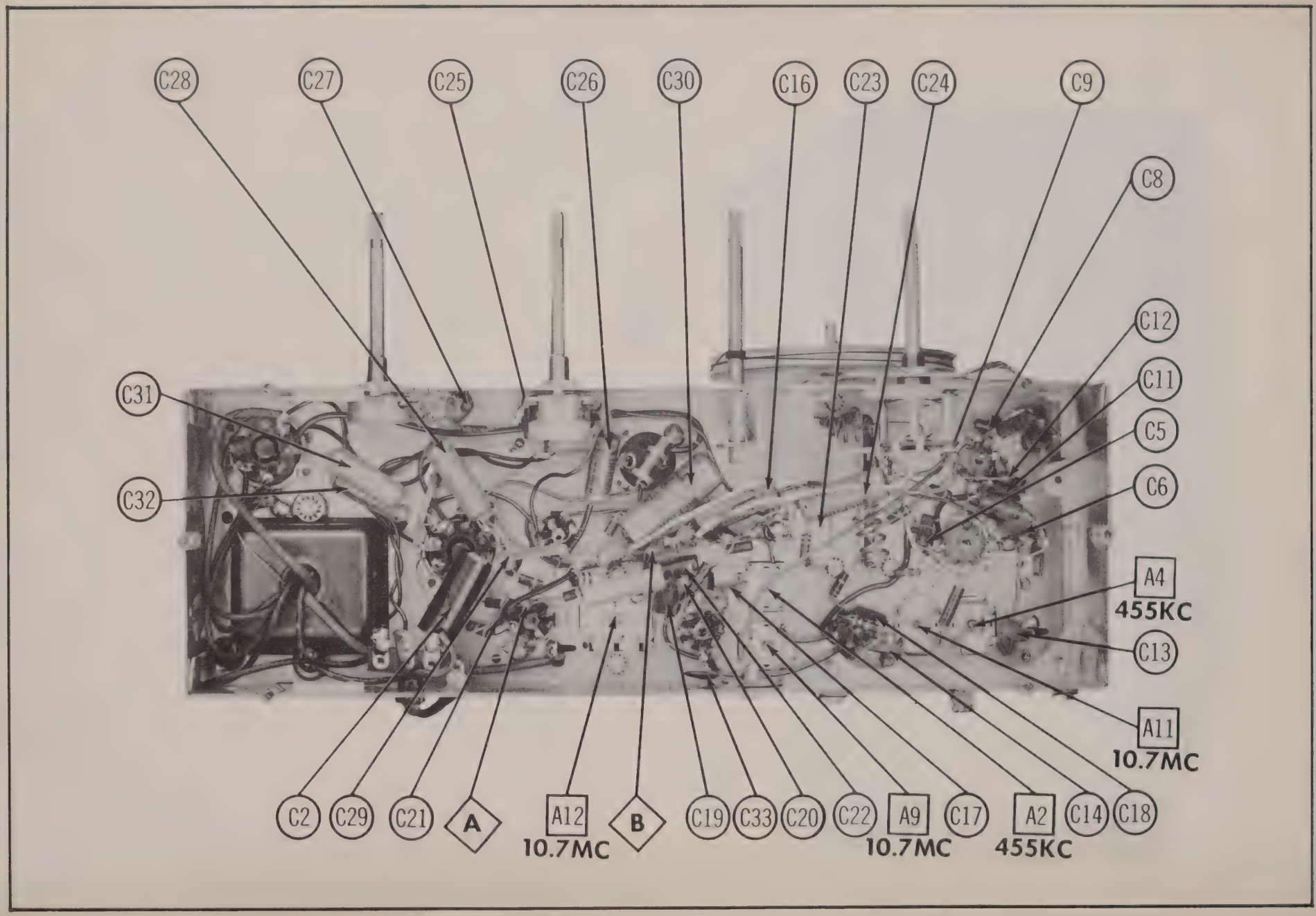
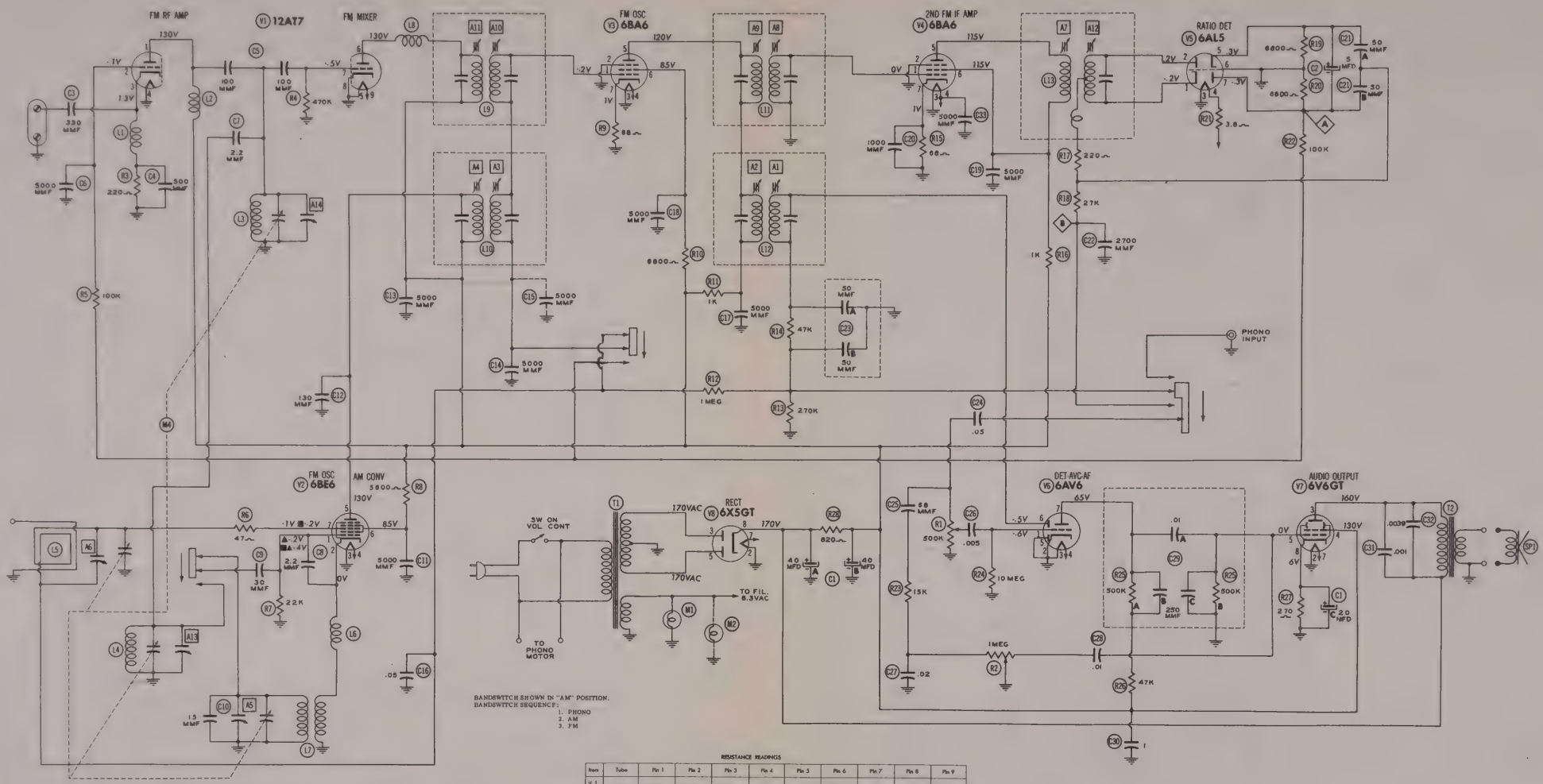

C28
C27
C25
C26
C30
C16
C23
C24
C9
C8
C12
C11
C5
C6
C31
C32
A4
455KC
C13
A11
10.7MC
C2
C29
C21
A
A12
10.7MC
B
C19
C33
C20
C22
A9
10.7MC
C17
A2
455KC
C14
C18



BANDSWITCH SHOWN IN "AM" POSITION.
BANDSWITCH SEQUENCE:
1. PHONO
2. AM
3. FM

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AT7	†820Ω	200Ω	220Ω	0Ω	0Ω	†820Ω	470KΩ	0Ω	.1Ω
V 2	6BE6	22KΩ	2.2Ω	0Ω	.1Ω	†820Ω	†6.5KΩ	1.3Meg.		
V 3	6BA6	100KΩ •1.3Meg.	0Ω	0Ω	.1Ω	†1.8KΩ	†7.6KΩ	68Ω		
V 4	6BA6	.8Ω	0Ω	0Ω	.1Ω	†1.8KΩ	†1.8KΩ	68Ω		
V 5	6AL5	INF	INF	0Ω	1.7Ω	6.8KΩ	0Ω	6.8KΩ		
V 6	6AV6	10Meg.	0Ω	0Ω	.1Ω	0Ω	315KΩ	†517KΩ		
V 7	6V6GT	INF	.1Ω	†440Ω	†820Ω	470KΩ	INF	0Ω	270Ω	
V 8	6X5GT	INF	0Ω	110Ω	INF	120Ω	INF	.1Ω	100KΩ	

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS NOTED.
† MEASURED FROM PIN 8 OF V8
• MEASURED IN "AM" POSITION

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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177-4

R7
L6
L7
L2
R8
R5
R6
L8
M3
L4
R13
R12
R28
R26
R1
R23
R2
R27
R21
R20
R19
R24
R25
R22
R17
R18
R15
R16
R11
R14
R9
R10
L3
R4

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	36X385	Q13-133X	AT-78	ANT-66	UT-427	Volume-Tapped @ 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SW-A	K-155	US-26	Attach to R1A
R2A	1 Meg.	½	40X343	Q11-137	AG-61-S	AB-69	U-54	Tone
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R3	220Ω	½	B84221	BTS-220	FM RF Amp. Cathode
R4	470Ω	½	B85474	BTS-470K	FM Mixer Grid
R5	100KΩ	½	B85104	BTS-100K	AVC Network
R6	47Ω	½	B85470		Parasitic Suppressor
R7	22KΩ	½	B85223	BTS-22K	FM Osc. Grid
R8	5600Ω	½	B85562	BTS-5600	FM Osc. Anode
R9	68Ω	½	B84680		1st. IF Amp. Cathode
R10	6800Ω	½	R84682	BTS-6800	1st. IF Amp. Screen
R11	1000Ω	½	B85102	BTS-1000	1st. IF Amp. Plate DEcoupling
R12	1Meg.	½	B85105	BTS-1Meg.	AVC Network
R13	270KΩ	½	B84274	BTS-270K	AVC Network
R14	47KΩ	½	B85473	BTS-47K	Diode RF Filter
R15	68Ω	½	B84680		2nd. FM IF Amp. Cathode
R16	1000Ω	½	B85102	BTS-1000	2nd. FM IF Amp. Decoupling: -See Note 1
R17	220Ω	½	B84221	BTS-220	Balancing-See Note 2
R18	27KΩ	½	B85273	BTS-27K	De-emphasis
R19	6800Ω	½	B84682	BTS-6800	Ratio Det. Diode Load-See Note 3.
R20	6800Ω	½	B48682	BTS-6800	Ratio Det. Diode Load-See Note 3.
R21	3.6Ω	½	43X233		Series Filament-Wire Wound
R22	100KΩ	½	B85104	BTS-100K	AVC Network
R23	15KΩ	½	B85153	BTS-15K	Tone Compensation
R24	10Meg.	½	B85106	BTS-10Meg.	AF Amp. Plate
R25A	500KΩ	½	♦76X5	BTS-470K	AF Amp. Plate
B	500KΩ	½	♦76X5	BTS-470K	Output Grid
R26	47KΩ	½	B85473	BTS-47K	AF Amp. Plate Decoupling
R27	270Ω	½	B84271	BTS-270	Output Cathode
R28	820Ω	2	D84821	BTB-820	Filter

♦ Items R25A, R25B, C29A, C29B, C29C are combined in one unit.

Note 1. Models 1570B & C, 1571B, 1572B use a 3900Ω resistor in this application.

Note 2. Used only in models 1570A, 1571A, 1572A.

Note 3. Models 1570B & C, 1571B, 1572B use a 10KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .39A	340VCT .076ADC	6.3VAC @ 3.2A		53X322		P-2952		R-8B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	6.5KΩ	3.8Ω	440Ω	.7Ω	51X152	A-3877	A-2931 ①	R0-9 ①		① Drill one new Mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6"	PM	3.8Ω	C-12A509	ST-108 Mod. P6-X	6A1	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

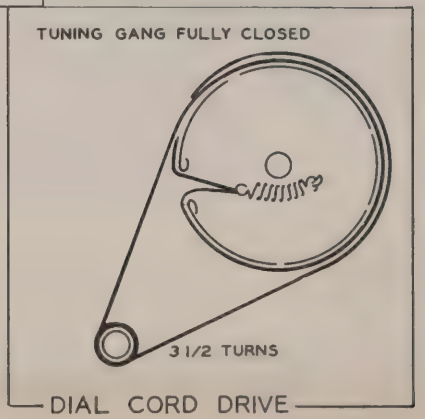
ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	AIRLINE PART No.	MERIT PART No.	IRC PART No.	
L1	FM Ant. Choke	.22Ω		35A9		CLA	.47UH
L2	RF Choke	3Ω		35A8		CLA	3.3UH
L3	FM RF Coil	0Ω		9A2066			
L4	FM Osc.	0Ω		9A2067			
L5	AM Loop Ant.	1.2Ω		9A2259			
L6	Cath. Choke	1.8Ω		35A5		CLA	2.2UH
L7	AM Osc.	.4Ω	5Ω	9A2065			
L8	Parasitic Suppressor	0Ω		9A2103			
L9	1st. FM IF	.8Ω	.8Ω	9A2060	FM-254		
L10	1st. AM IF	12.2Ω	13.8Ω	9A2062	BC-352		
L11	2nd. FM IF	.8Ω	.8Ω	9A2061	FM-254		
L12	2nd. AM IF	13Ω	14.8Ω	9A2063	BC-352		
L13	Ratio Det.	1Ω	.1Ω	9A2161			Tertiary winding .2Ω

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					AIRLINE PART No.		
M1	Bayonet	7.5	.2	White	7A32		Type No. #51
M2	Bayonet	7.5	.2	White	7A32		Type No. #51

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M3	Switch	2A394	Band -Change
M4	2 Gang Var. Cap.	14A217	(17-514MMF, 23-197MMF) AM Sections
A6	Trimmer	17A256	AM Ant. Adj. (2-24MMF)
A13	Trimmer	17A255	FM Osc. Adj. (1-8MMF)
	Cabinet	55X423	Brown
	Cabinet	55X424	Gray
	Cabinet	55X425	Black
	Knob	10A801	Brown
	Knob	10A802	Gray
	Knob	10A803	Black
	Pointer	15X270	
	Dial Scale	S-25A21	Brown Cabinet-Models 25WG-1570A, B
	Dial Scale	S-25A25	Brown Cabinet-Model 25WG 1570C
	Dial Scale	S-25A22	Gray Cabinet
	Dial Scale	S-25A23	Black Cabinet



L. F. [illegible]
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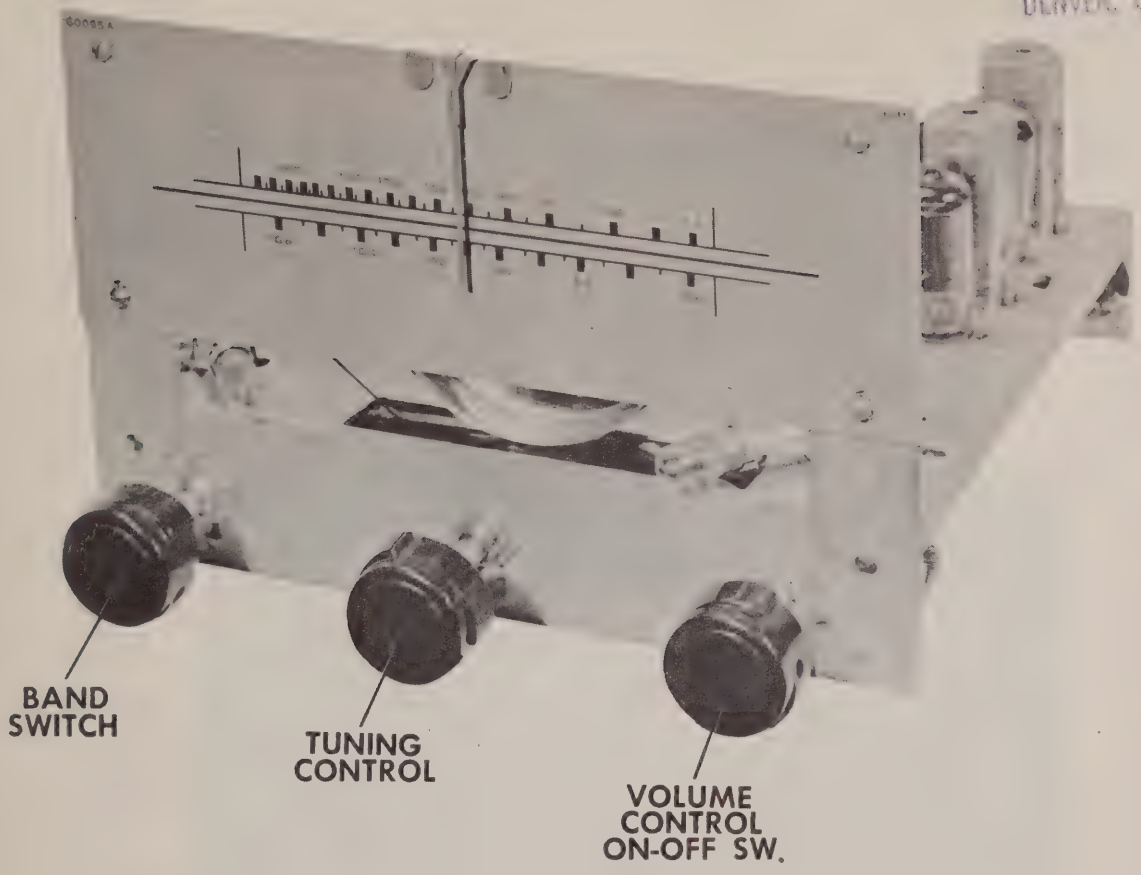
DENVER, COLO[illegible]

APPROVED ELECTRONICS
MODEL A-710



APPROVED ELECTRONICS
MODEL A-710

TRADE NAME	Approved Electronics Model A-710
MANUFACTURER	Approved Electronic Instrustment Corp., 142 Liberty St., New York, 6, N.Y.
TYPE SET	AM-FM Superheterodyne Tuner For Custom Installation
TUBES (Twelve)	Types 6C B6 or 6AG5 FM RF Amp., 6BE6 FM Mixer, 6J6 FM Osc., (2)6AU6 FM IF Amp., (2)6AU6 FM Limiter, 6AL5 Discriminator, 6BA6 AM RF Amp., 6BE6 AM Conv., 6BA6 AM IF Amp., 6AT6 Det.-AVC-AF Amp.
POWER SUPPLY REQUIREMENTS	(AM) 170 Volts DC @ 20MA, (FM) 140 Volts DC @ 37MA, (Filaments) 6.3 Volts AC @ 4 Amp.
TUNING RANGE-BROADCAST	530-1800KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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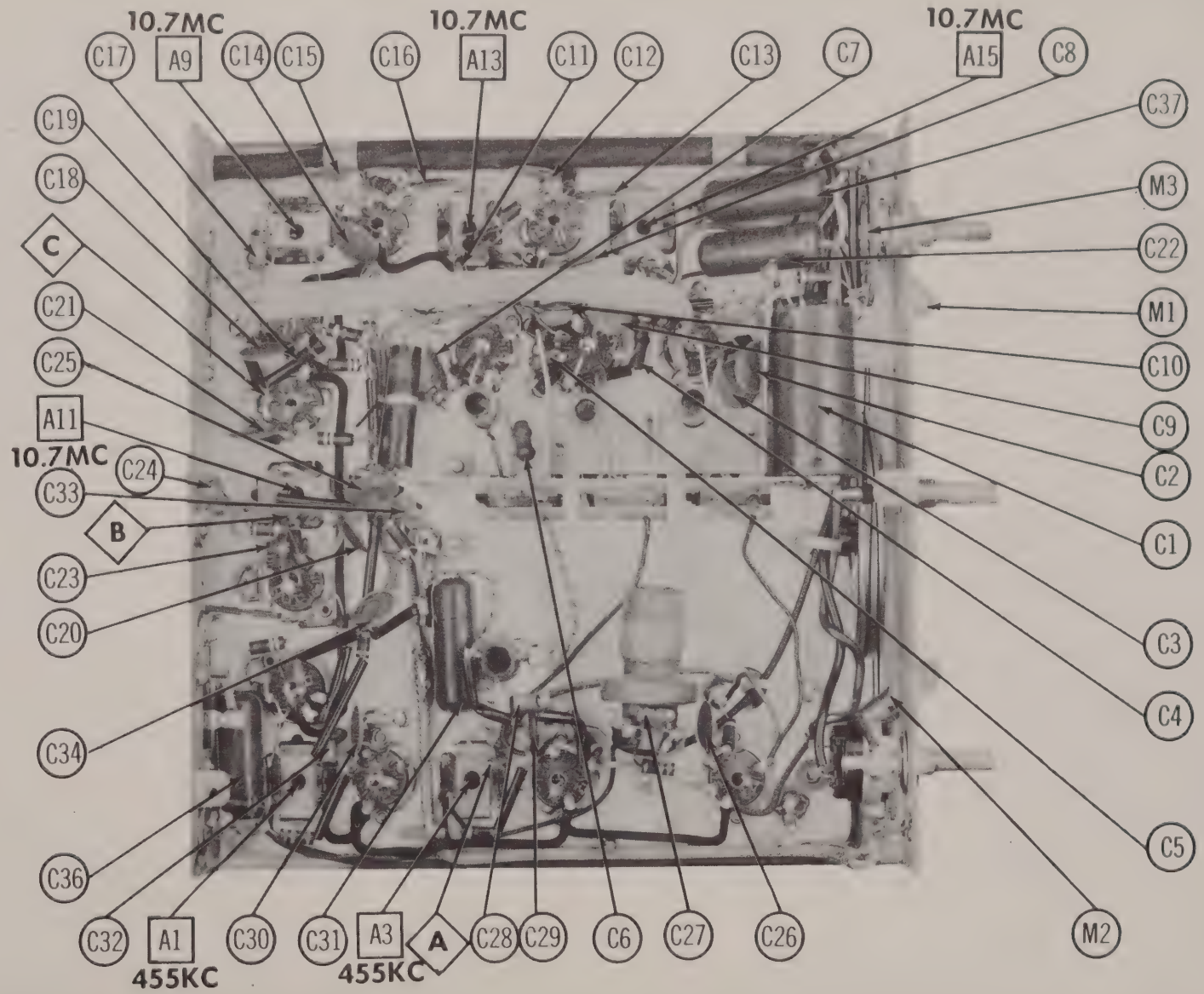
10.7MC
A9
10.7MC
A13
10.7MC
A15
C17
C14
C15
C16
C11
C12
C13
C7
C8
C19
C18
C
C21
C25
A11
10.7MC
C24
C33
B
C23
C20
C34
C36
C32
A1
455KC
C30
C31
A3
455KC
A
C28
C29
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C4
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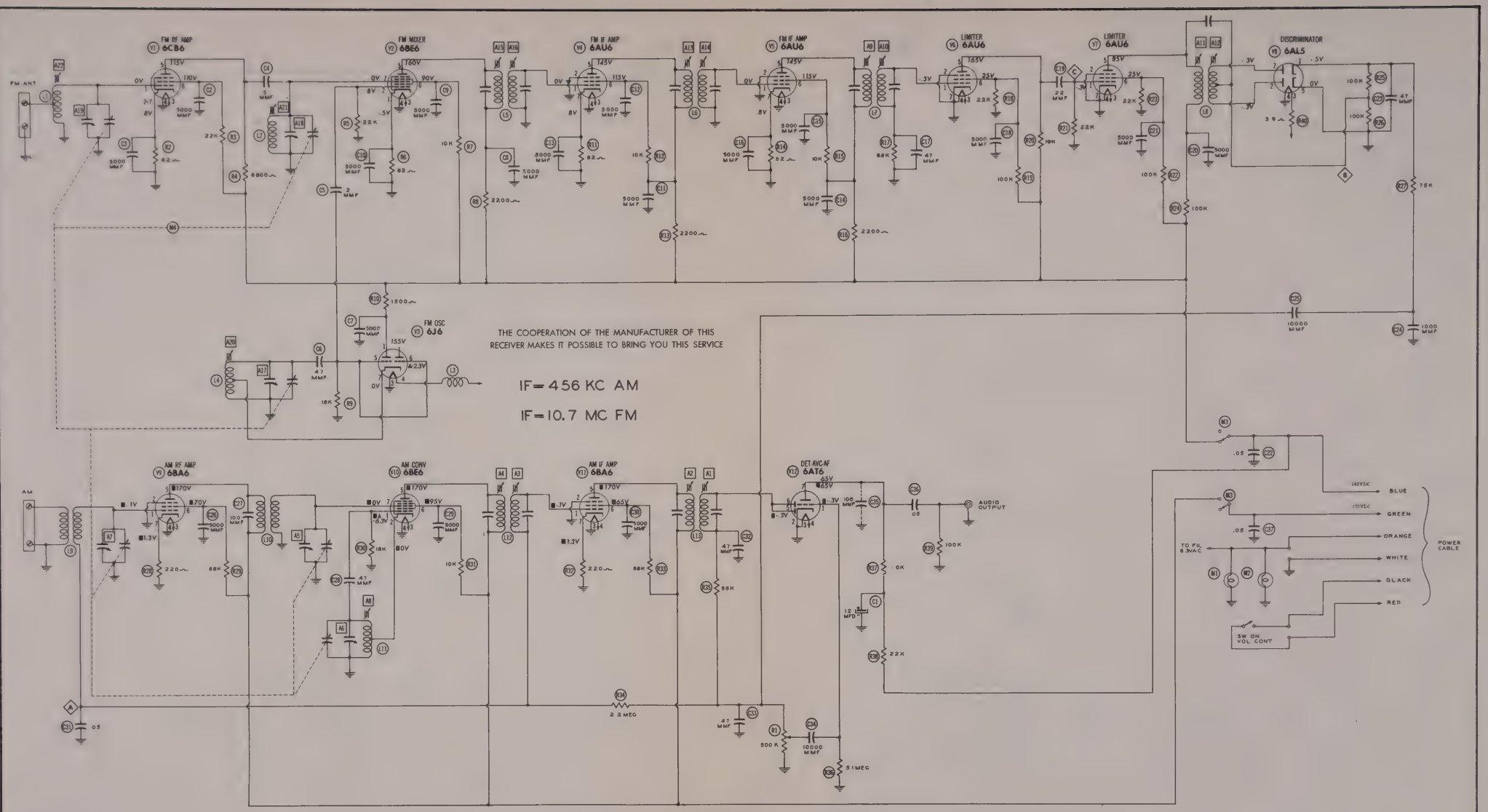

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6CB6	0Ω	75Ω	1Ω	0Ω	18.6KΩ	122KΩ	75Ω
V 2	6BE6	39KΩ	75Ω	1Ω	0Ω	12.3KΩ	110KΩ	0Ω
V 3	6J6	11.5KΩ	INF.	0Ω	1Ω	18KΩ	18KΩ	0Ω
V 4	6AU6	5Ω	0Ω	1Ω	0Ω	12.2KΩ	112KΩ	75Ω
V 5	6AU6	5Ω	0Ω	1Ω	0Ω	12.2KΩ	112KΩ	75Ω
V 6	6AU6	68KΩ	0Ω	1Ω	0Ω	110KΩ	22KΩ	0Ω
V 7	6AU6	32KΩ	0Ω	1Ω	0Ω	100KΩ	22KΩ	0Ω
V 8	6AL5	300KΩ	100KΩ	1.8Ω	0Ω	0Ω	0Ω	100KΩ
V 9	6BA6	1.1MEG	0Ω	0Ω	1Ω	▲65KΩ	▲65KΩ	330Ω
V 10	6BE6	18KΩ	47Ω	1Ω	0Ω	▲18KΩ	▲18KΩ	5.5Ω
V 11	6BA6	2.1MEG	0Ω	0Ω	1Ω	▲18KΩ	▲65KΩ	330Ω
V 12	6AT6	5.1MEG	0Ω	0Ω	1Ω	58KΩ	58KΩ	330Ω ▲122KΩ

ALL MEASUREMENTS TAKEN IN FM POSITION UNLESS NOTED.
† MEASURED FROM 150 VDC LINE (BLUE LEAD).
# MEASURED FROM 170 VDC LINE (GREEN LEAD).
▲ MEASURED IN AM POSITION

1 - DC Voltage measurements are at 20,000 ohms per volts, AC Voltages measured at 1000 ohms per volt.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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177-5

PRO
L. F. BLA
3924 MEADE ST.
DENVER, COLORADO

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V10) Low side to chassis.	456KC (400∿ Mod.)	AM	Tuning gang fully open.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Direct	High side to AM antenna terminal Low side of chassis.	1450KC	AM	1450KC	DC probe to point (A). Common to chassis.	A5, A6, A7	Adjust in order given for maximum deflection.
3.	Direct	High side to AM antenna terminal. Low side to chassis.	600KC	AM	600KC	DC probe to point (A). Common to chassis.	A8	Adjust for maximum deflection while rocking tuning gang. Repeat steps 2 and 3 until no further change is noted.

FM IF ALIGNMENT

Remove the oscillator tube, V3, to prevent erroneous indications on the scope during alignment.
Connect the synchronized sweep voltage from the signal generator the the horizontal input of the oscilloscope for horizontal deflection.
Keep the generator signal output low to prevent distortion of the response curve.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	SCOPE CONNECT	ADJUST	REMARKS
4.	.001MFD	High side to pin 1 (grid) of 6AU6(V5) Low side to chassis.	10.7MC (450KC Swp)	FM	Any.	Vert Amp. to point (B). Low side to chassis.	A9, A10, A11, A12	Adjust A9, A10 and A11 for flat-topped symmetrical curve of maximum amplitude. Adjust A12 to place the 10.7MC marker at center of flat-top of curve of per fig. 1.
5.	.001MFD	High side to pin 1 (grid) of 6AU6(V4) Low side to chassis.	10.7MC (450KC Swp)	FM	Any.	Vert Amp. to point (B). Low side to chassis.	A13, A14	Adjust for curve of maximum amplitude and symmetry as per fig. 1.
6.	.001MFD	High side to pin 1 (grid) of 6BE6(V20). Low side to chassis.	10.7MC (450KC Swp)	FM	Any.	Vert Amp. to point (B). Low side to	A15, A16	Adjust for curve of maximum amplitude and symmetry as per fig. 1. Repeat steps 4, 5 and 6 for best results.

FM RF ALIGNMENT

Replace the 6J6, V3, in its socket.
The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across FM antenna terminals with 120Ω in each lead.	106MC (Unmod)	FM	106MC	DC probe to point (C). Common to chassis.	A17, A18 A19	Adjust in order given for maximum deflection.
8.	Two 120Ω carbon resistors	Across FM antenna terminals with 120Ω in each lead.	90MC	FM	90MC	DC probe to point (C). Common to chassis.	A20, A21 A22	Adjust in order given for maximum deflection. Repeat steps 7 and 8 until no further change is noted.

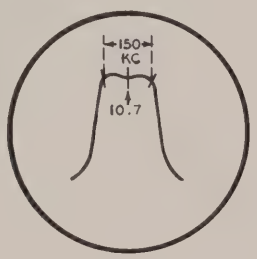


FIG. 1

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Approved Electronics PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	FM RF Amplifier	6CB6	6CB6	7CH	
V1B	FM RF Amplifier	6AG5	6AG5	7BD	
V2	FM Mixer	6BE6	6BE6	7CH	
V3	FM Oscillator	6J6	6J6	7BF	
V4	FM IF Amplifier	6AU6	6AU6	7BK	
V5	FM IF Amplifier	6AU6	6AU6	7BK	
V6	Limiter	6AU6	6AU6	7BK	
V7	Limiter	6AU6	6AU6	7BK	
V8	Discriminator	6AL5	6AL5	6BT	
V9	AM RF Amplifier	6BA6	6BA6	7BK	
V10	AM Converter	6BE6	6BE6	7CH	
V11	AM IF Amplifier	6BA6	6BA6	7BK	
V12	Det. -AVC-AF Amp.	6AT6	6AT6	7BT	

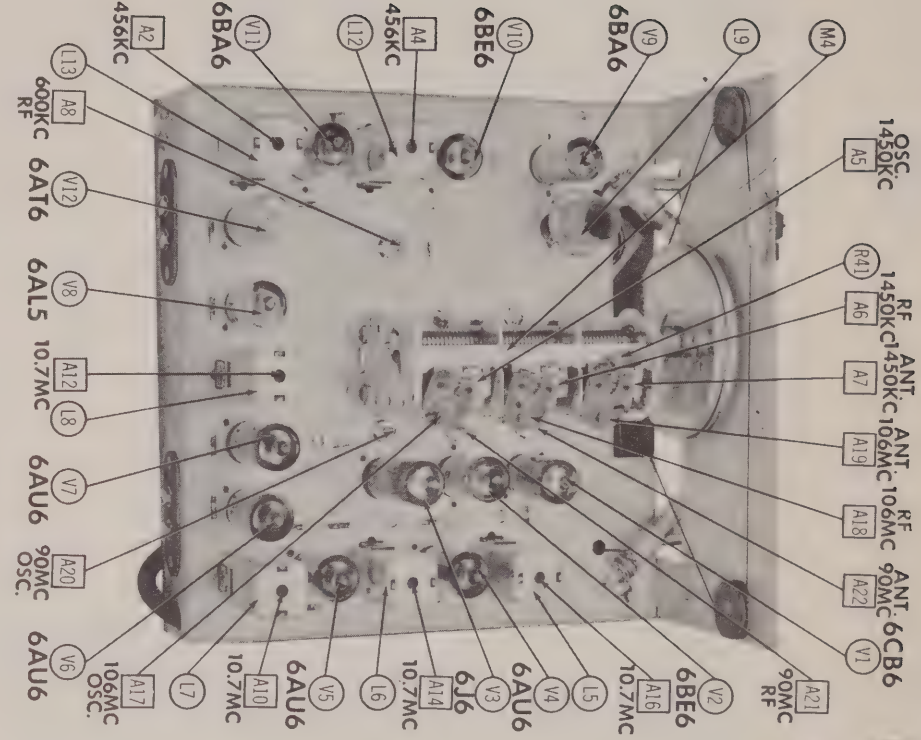
CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Approved Electronics PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	12	450		PRS450/12		BR1245A		TC73	TVA-1706	Note 1
C2	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C3	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C4	5			SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5TCUB-V5	
C5	2									
C6	47				TCZ-47		NPOL-470		5TCC-Q47	
C7	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C8	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C9	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C10	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C11	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C12	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C13	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C14	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C15	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C16	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C17	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C18	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C19	22			SI22	D6-220	5W5Q25	GP1K-220	UC-5422	5GA-Q22	
C20	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C21	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C22	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C23	47			SI47	D6-470	TM6Q5	GP1K-470	UC-5447	5GA-Q47	
C24	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C25	10000			BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C26	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C27	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C28	47				TCZ-47		NPOL-479		5TCC-Q47	
C29	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C30	5000			BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 2
C31	.05	600		P688-05	DF-503	PTE6S5		PT-615	6TM-S5	
C32	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C33	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C34	10000			BPD-01	DD-103	TM5S1	821-01	DC-551	5HK-S1	Note 3
C35	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 4
C36	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	
C37	.05	600		P688-05	DF-503	PTE6S5		PT615	6TM-S5	

Note 1. Some models use 8MFD in this application.
Note 2. Some models use 10000MMF in this application.
Note 3. Some models use 5000MMF in this application.
Note 4. Not used in all models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Approved Electronics PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	BA012-138	Q13-133	AG-60-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	Approved Electronics PART No.	IRC PART No.	
R2	82Ω	½		BTS-82	FM RF Amp. Cathode
R3	22KΩ	1		BTA-22K	FM RF Amp. Screen
R4	6800Ω	1		BTA-6800	FM RF Amp. Plate
R5	22KΩ	½		BTS-22K	FM Mixer Grid
R6	82Ω	½		BTS-82	FM Mixer Cathode
R7	10KΩ	½		BTS-10K	FM Mixer Screen
R8	2200Ω	½		BTS-2200	FM Mixer Plate Decoupling
R9	18KΩ	½		BTS-18K	FM Osc. Grid
R10	1500Ω	2		BTB-1500	FM Osc. Plate
R11	82Ω	½		BTS-82	1st. FM IF Amp. Cathode
R12	10KΩ	½		BTS-10K	1st. FM IF Amp. Screen
R13	2200Ω	½		BTS-2200	1st. FM IF Amp. Decoupling
R14	82Ω	½		BTS-82	2nd. FM IF Amp. Cathode
R15	10KΩ	½		BTS-10K	2nd. FM IF Amp. Screen
R16	2200Ω	½		BTS-2200	2nd FM IF Amp. Decoupling
R17	68KΩ	½		BTS-68K	1st, Limiter Grid
R18	22KΩ	½		BTS-22K	Voltage Divider
R19	100KΩ	½		BTS-100K	1st. Limiter Screen
R20	10KΩ	½		BTS-10K	1st. Limiter Plate-See Note 1.
R21	22KΩ	½		BTS-22K	2nd. Limiter Grid
R22	100KΩ	½		BTS-100K	2nd. Limiter Screen
R23	22KΩ	½		BTS-22K	Voltage Divider
R24	100KΩ	½		BTS-100K	2nd. Limiter Plate Decoupling
R25	100KΩ	½		BTS-100K	Discriminator Diode Load
R26	100KΩ	½		BTS-100K	Discriminator Diode Load
R27	75KΩ	½			De-emphasis
R28	220Ω	½		BTS-220	AM RF Amp. Cathode
R29	68KΩ	½		BTS-68K	AM RF Amp. Screen
R30	18KΩ	½		BTS-18K	Osc. Grid
R31	10KΩ	½		BTS-10K	Osc. Anode
R32	220Ω	½		BTS-220	AM IF Amp. Cathode
R33	68KΩ	½		BTS-68K	AM IF Amp. Screen
R34	2.2Meg.	½		BTS-2.2 Meg.	A V C Network
R35	68KΩ	½		BTS-68K	Diode R. F. Filter
R36	5.1Meg.	½			AF Amp. Grid-See Note 2.
R37	100KΩ	½		BTS-100K	AF Amp. Plate-See Note 3.
R38	22KΩ	½		BTS-22K	AF Amp. Plate Decoupling-See Note 4.
R39	100KΩ	½		BTS-100K	Tone Compensation
R40	3.9Ω	½			Filament Dropping
R41	4700Ω	½		BTS-4700	FM RF Amp. Grid

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Approved Electronics PART No.	MERIT PART No.	
L1	FM Ant. Coil	0Ω				
L2	FM RF Coil	0Ω				
L3	Fil. Choke	0Ω				
L4	FM Osc. Coil	0Ω				
L5	1st. FM IF	.5Ω	.5Ω		FM-254	
L6	2nd. FM IF	.5Ω	.5Ω		FM-254	
L7	3rd. FM IF	.5Ω	.5Ω		FM-254	
L8	Disc. Trans.	.6Ω	.7Ω		FM-253	Tap @ .4Ω
L9	AM Ant. Coil	22.5Ω	4.6Ω		BC-380	
L10	AM RF Coil	50Ω	5.7Ω		BC-382	
L11	AM Osc. Coil	4.2Ω				Tap @ .4Ω
L12	1st. AM IF	18Ω	18Ω		BC-352	
L13	2nd. AM IF	18Ω	18Ω		BC-353	

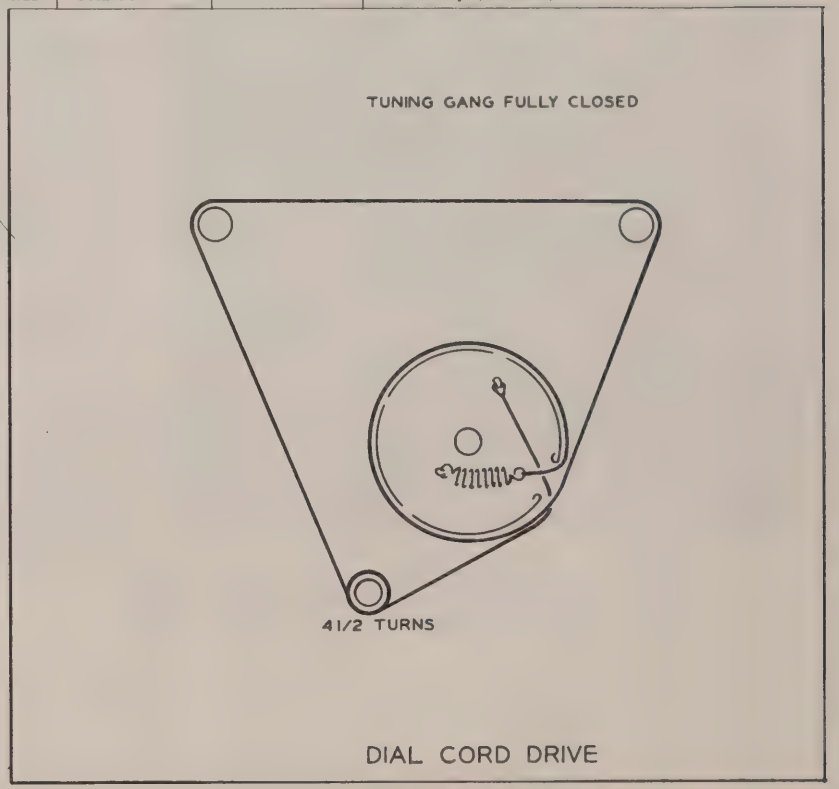
PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

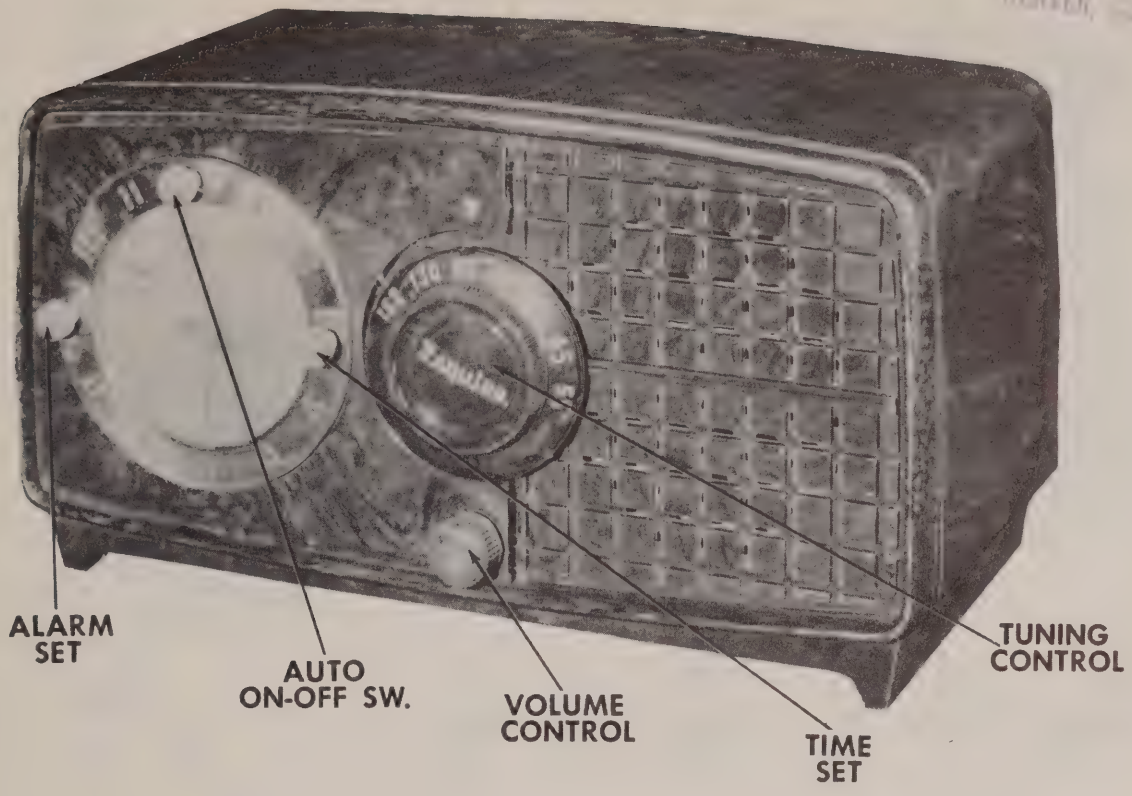
ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Approved Electronics PART No.		
M1	Bayonet	6-8	.15	Brown			Type No. #47
M2	Bayonet	6-8	.15	Brown			Type No. #47

MISCELLANEOUS

ITEM No.	PART NAME	Approved Electronics PART No.	NOTES
M3	Switch		Function Selector
M4	3 Gang Var. Cap.		(15-479MMF, 18-482MMF, 18-197MMF)
A20	Trimmer		FM Osc. Adj. (3-13MMF)
A21	Trimmer		FM Mixer Adj. (3-13MMF)
A22	Trimmer		FM RF Adj. (3-13MMF)



ESQUIRE
MODEL 550



ESQUIRE
MODEL 550

TRADE NAME	Esquire Model 550
MANUFACTURER	Esquire Radio Corp., 26 Court St., Brooklyn, N.Y.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING .27 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to chassis.	455 KC (400~ Mod.)	Tuning gang fully open.	Across voice coil	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

After alignment is completed replace receiver in cabinet, turn tuning gang fully closed and set last index mark at low frequency end of dial opposite the index mark on chassis.

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PARTS LIST AND DESCRIPTIONS

ESQUIRE MODEL 550

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ESQUIRE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ESQUIRE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	70	150		PRS150/30-30-30		EDL8415		3N534	TVA-2460	+ Red + Blue
B	30	150								
C2	.05	200		P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3A	220			SI220	♦PC-150	5W5T25	GP2K-221	UC-5322	♦ 103C4	
B	2000			BPD-002		TM5D2	801-002	DC-522		
C	5000			BPD-005		TM5D5	811-005	DC-525		
D, E	250									
C4	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C5	.05	400		489ZGXY-05		PJ4S5		PT415	4TM-S5	
C6	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	

♦ Items C3A, C3B, C3C, C3D, C3E, R5A, R5B, R5C are combined in one unit.
When replacing items separately C3D and C3E should total 250MMF

CONTROLS

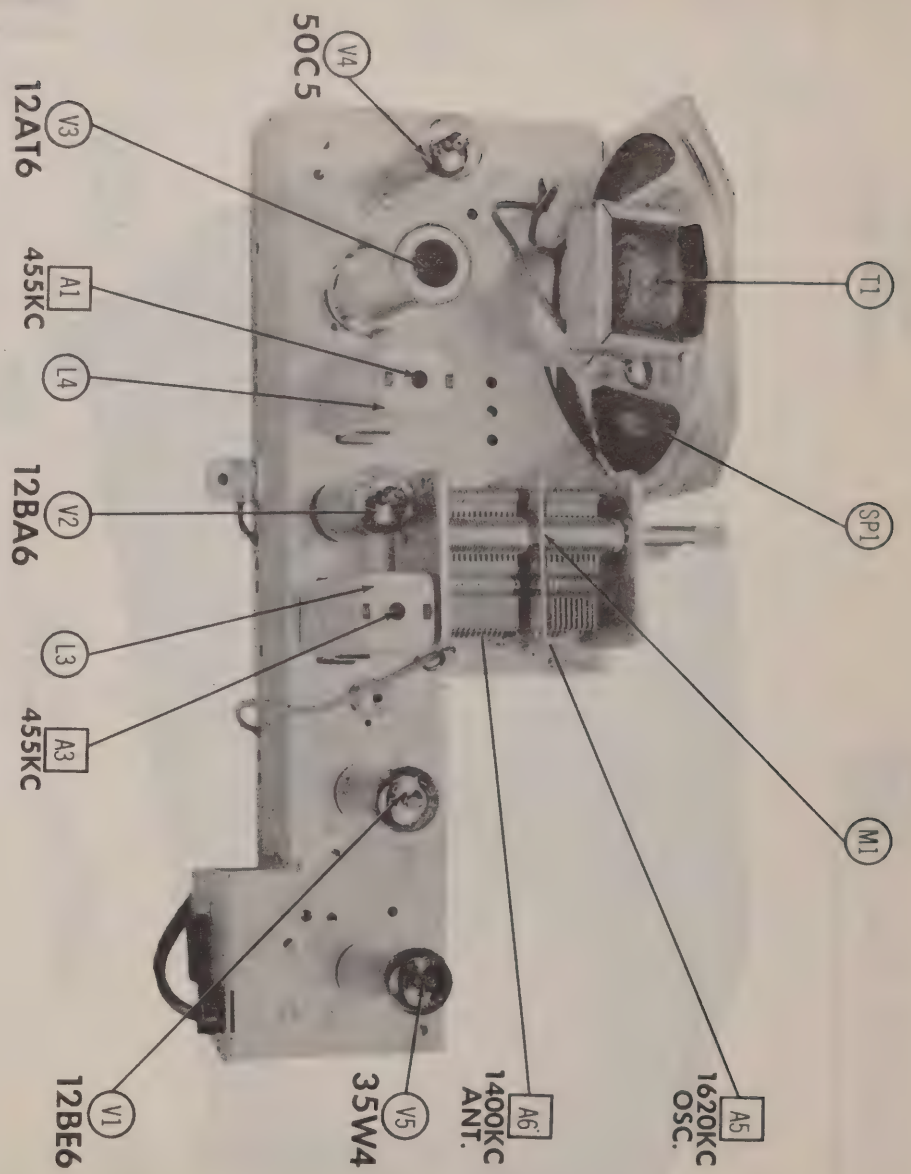
ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ESQUIRE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	25-3	Q13-133	AG-60-Z	BSK-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ESQUIRE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½		BTS-22K	Osc. Grid
R3	3.3Meg	½		BTS-3.3Meg	AVC Network
R4	150Ω	½		BTS-150	IF Amp. Cathode
R5A	6.8Meg	½		BTS-6.8Meg	AF Amp. Grid
B	470KΩ	½	♦	BTS-470K	AF Amp. Plate
C	470KΩ	½		BTS-470K	Output Grid
R6	150Ω	½		BTS-150	Output Cathode
R7	1500Ω	1		BTA-1500	Filter
R8	22Ω	½			Rectifier Ballast

♦ Items R5A, R5B, R5C, C3A, C3B, C3C, C3D, C3E are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		ESQUIRE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	3.3KΩ	3.1Ω	200Ω	.5Ω	Part of Spkr.	A-3850 ①	A-3025		S-6X	① Drill one new mtg. hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ESQUIRE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.1Ω	7102-1	ST-113 Mod. P4-X	4A07	

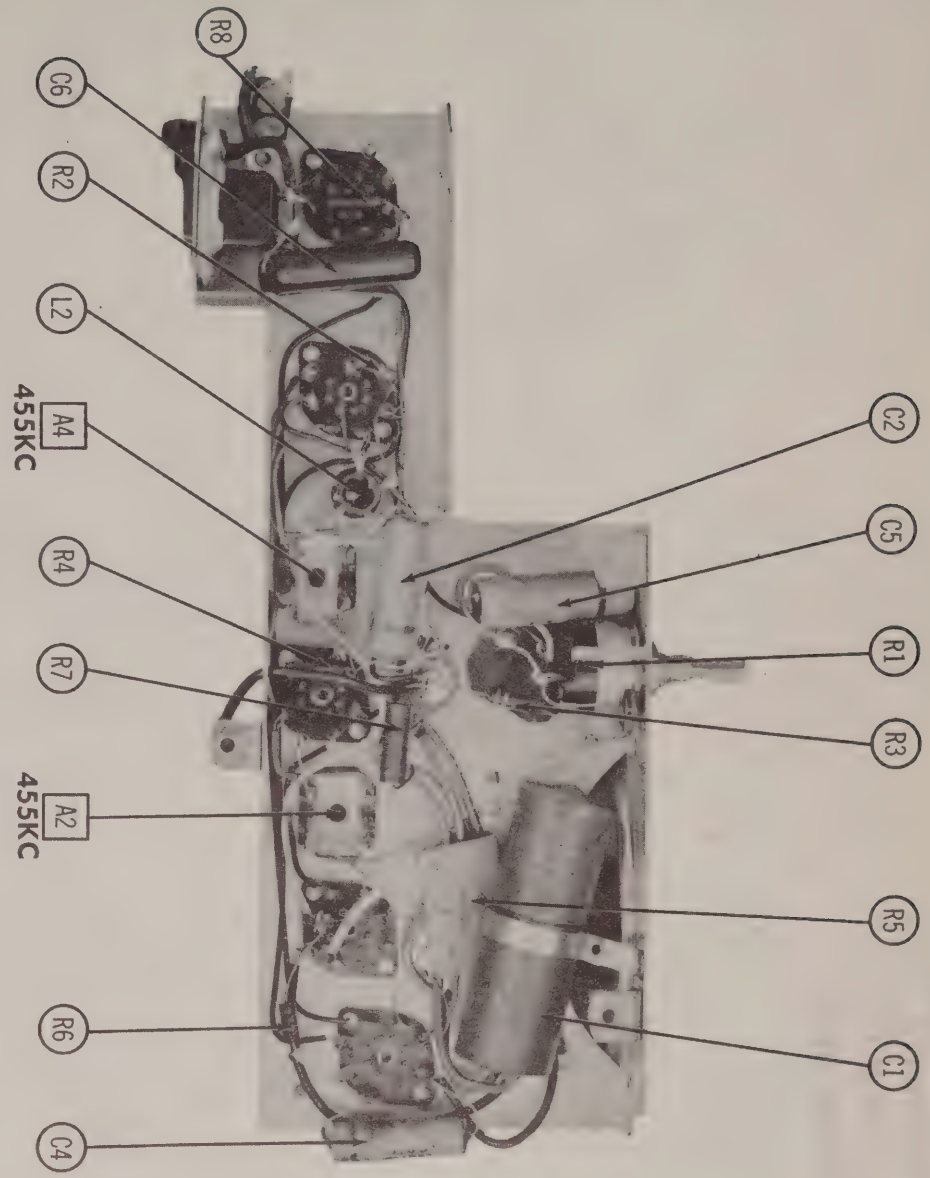
COILS (RF-IF)

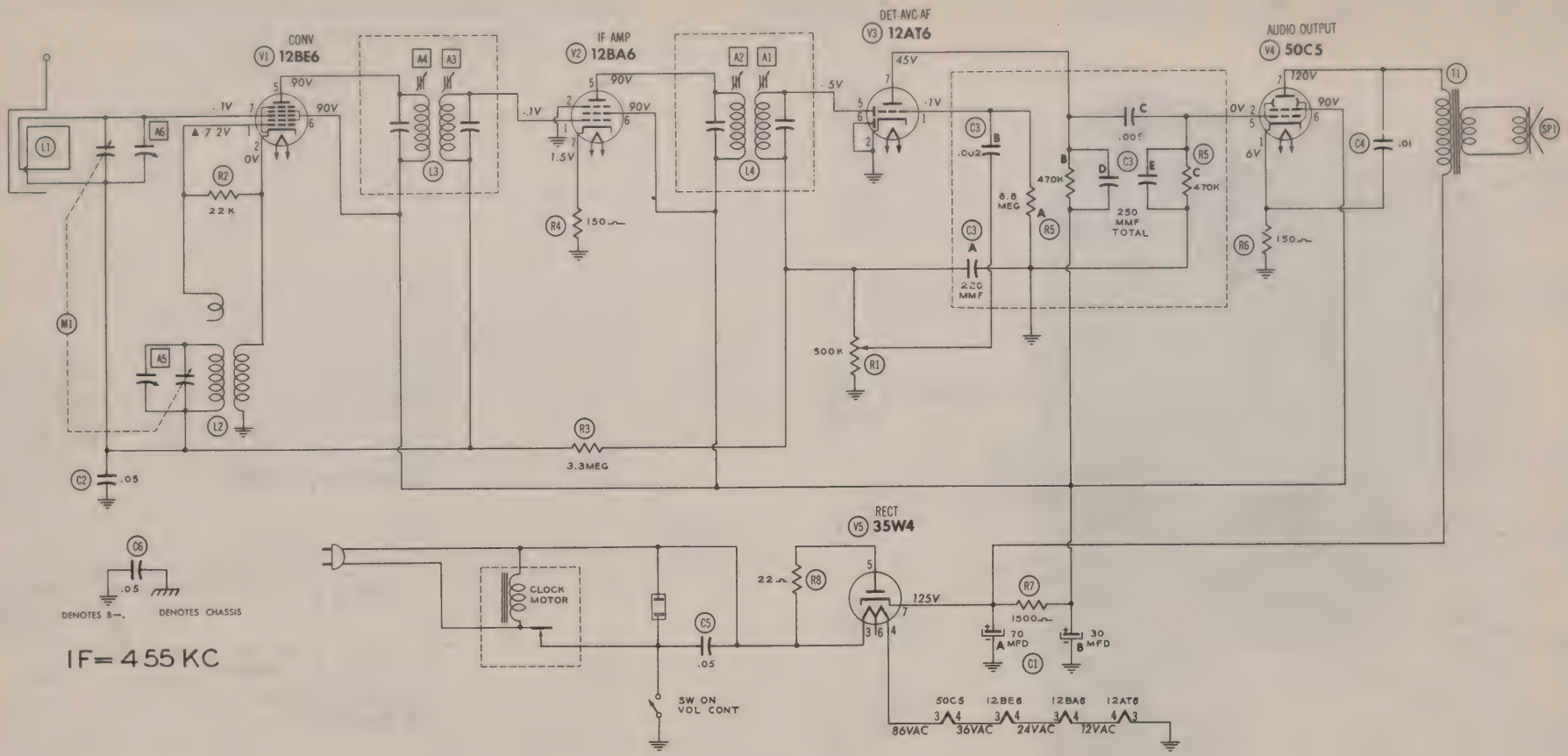
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	ESQUIRE PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω				
L2	Osc. Coil	.6Ω	5.4Ω			
L3	Input IF	18Ω	18Ω		BC-352	
L4	Output IF	18Ω	18Ω		BC-353	

MISCELLANEOUS

ITEM No.	PART NAME	ESQUIRE PART No.	NOTES
M1	2 gang var. gang		(30-462MMF, 27-197MMF)

CHASSIS—BOTTOM VIEW





RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	36Ω	24Ω	†1.5KΩ	†1.5KΩ	3.8Meg
V 2	12BA6	3.8Meg	0Ω	.24Ω	12Ω	†1.5KΩ	†1.5KΩ	150Ω
V 3	12AT6	6.8Meg	0Ω	0Ω	12Ω	500KΩ	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	86Ω	36Ω	470KΩ	†1.5KΩ	†200Ω
V 5	35W4	INF	INF	121Ω	86Ω	143Ω	103Ω	40KΩ

† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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177-6

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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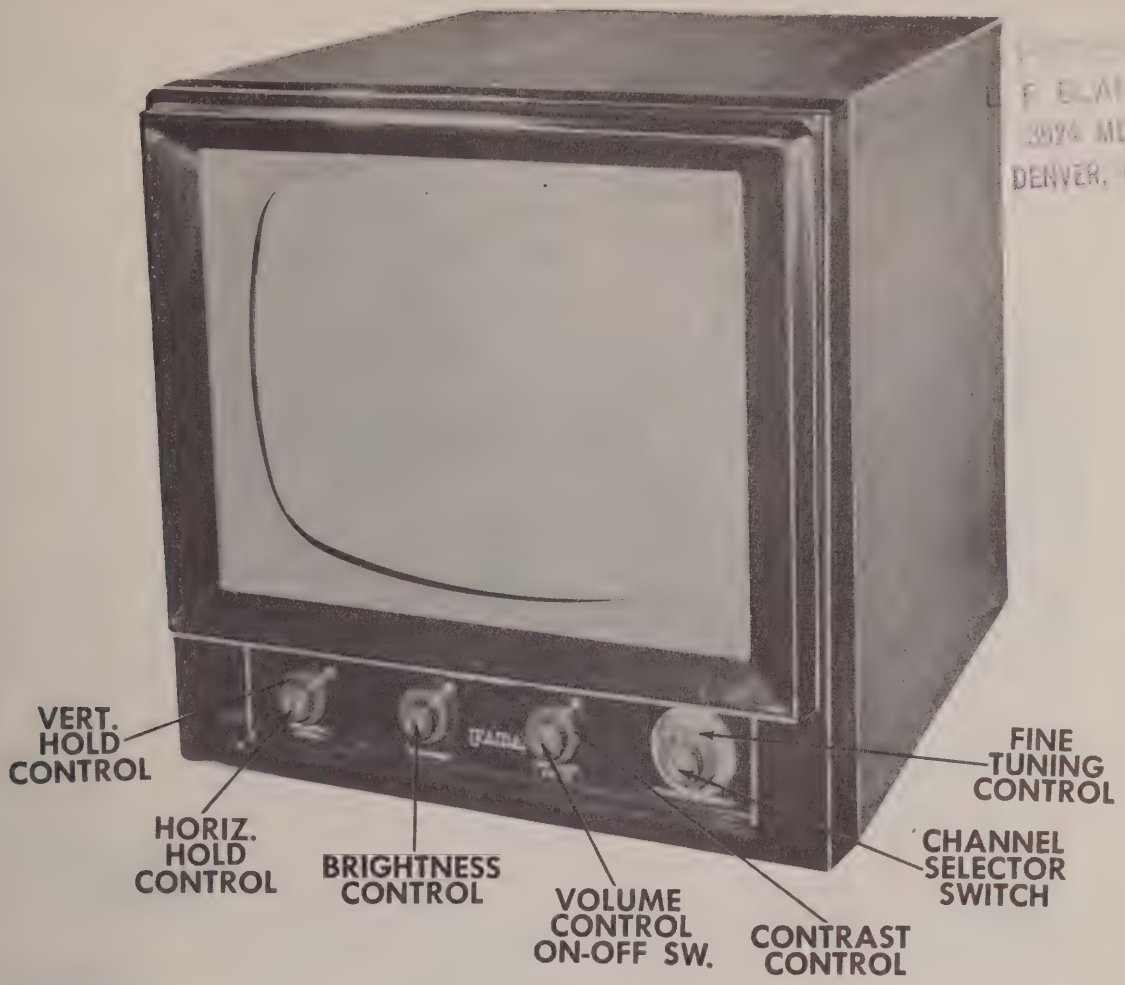

FADA MODELS 7T32, 77T32, 721

FADA 7T32

TRADE NAME	Fada Models 7T32, 721, 775T
MANUFACTURER	Fada Radio & Electric Co., Inc., 525 Main St., Belleville, New Jersey
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	2.3 Amp. @ 117 Volts AC
TUNING RANGE	Channel 2 thru 13

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
- Cabinet-Rear View 11
- Capacitor and Alignment Identification 4, 9
- Chassis - Top View 3
- RF Tuner 10
- Resistor and Inductor Identification 15, 16

Resistance Measurements 8
Schematic 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

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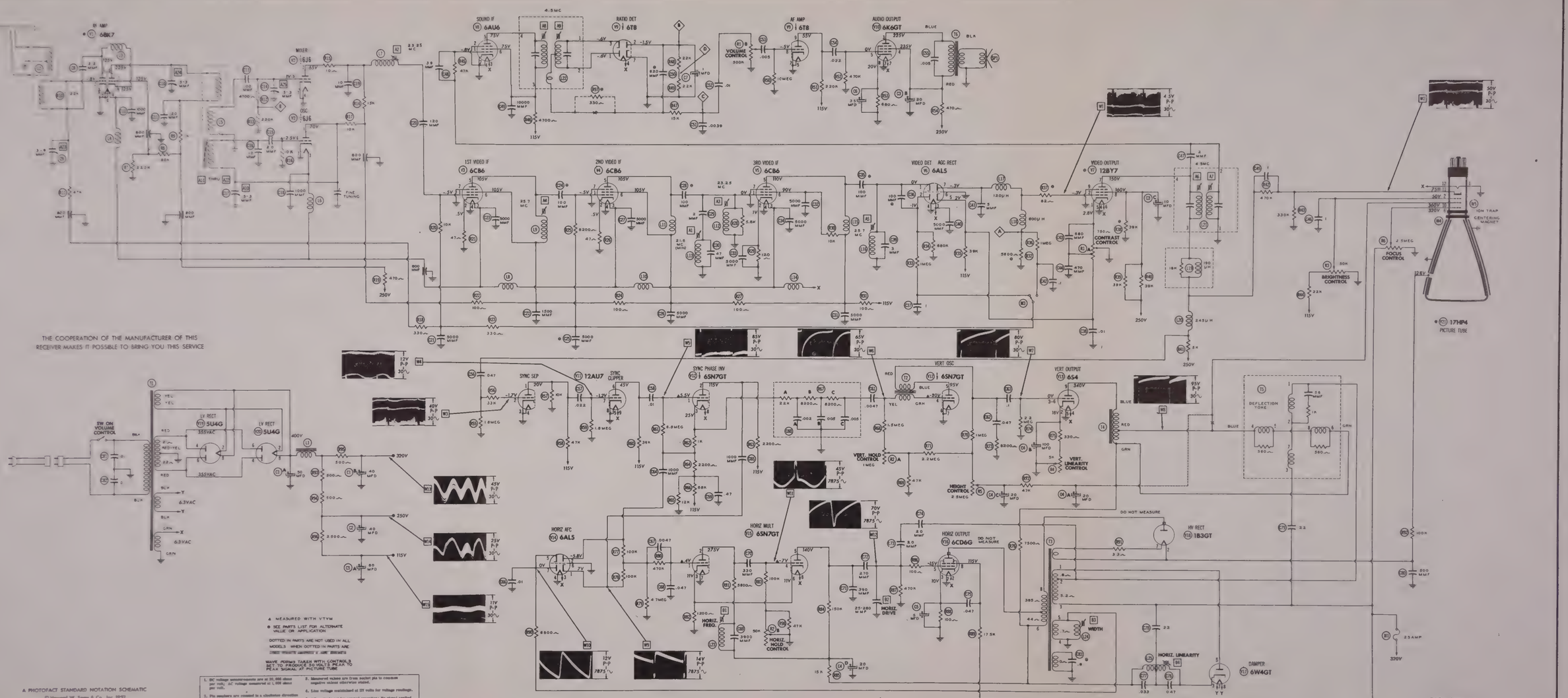
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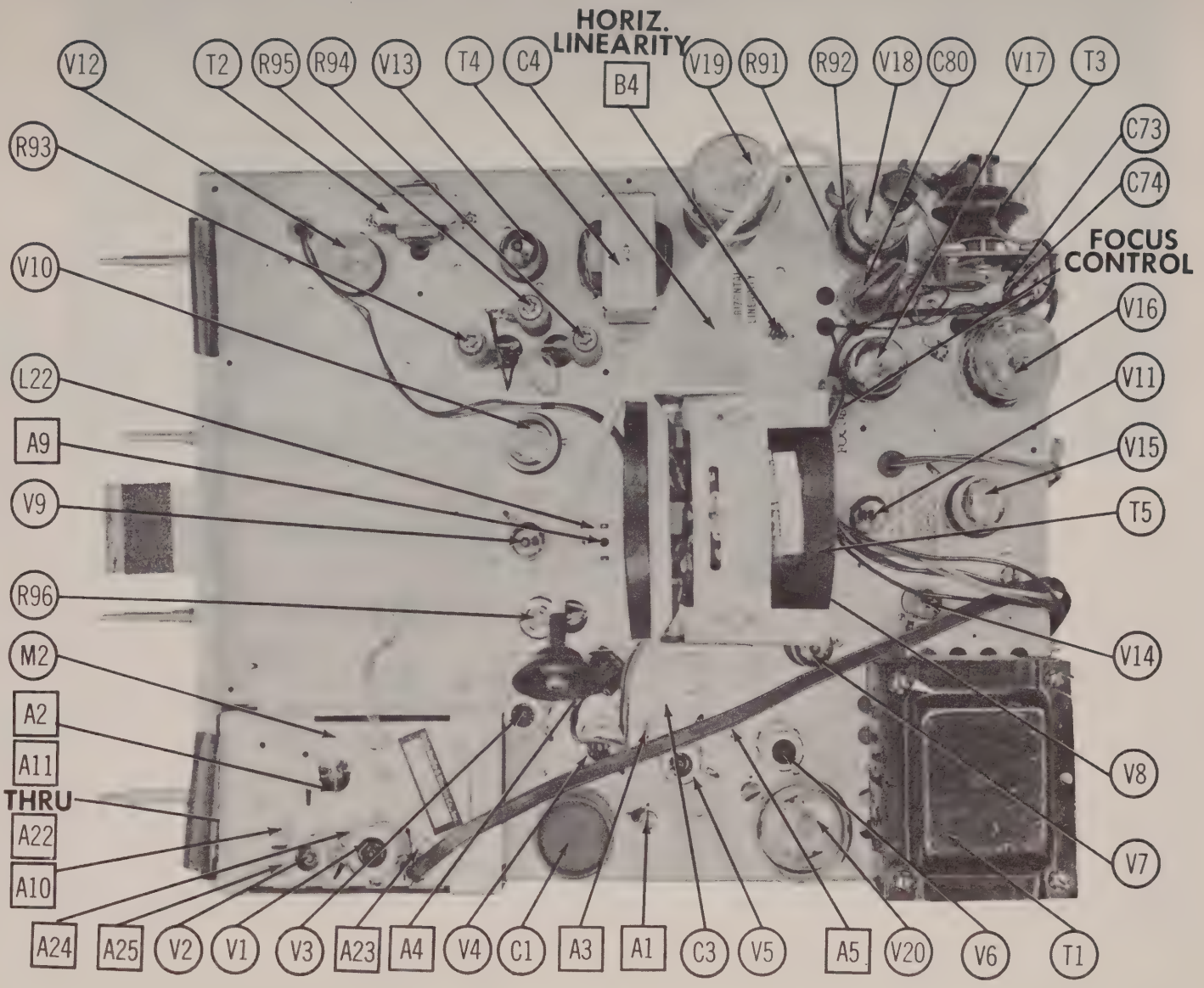
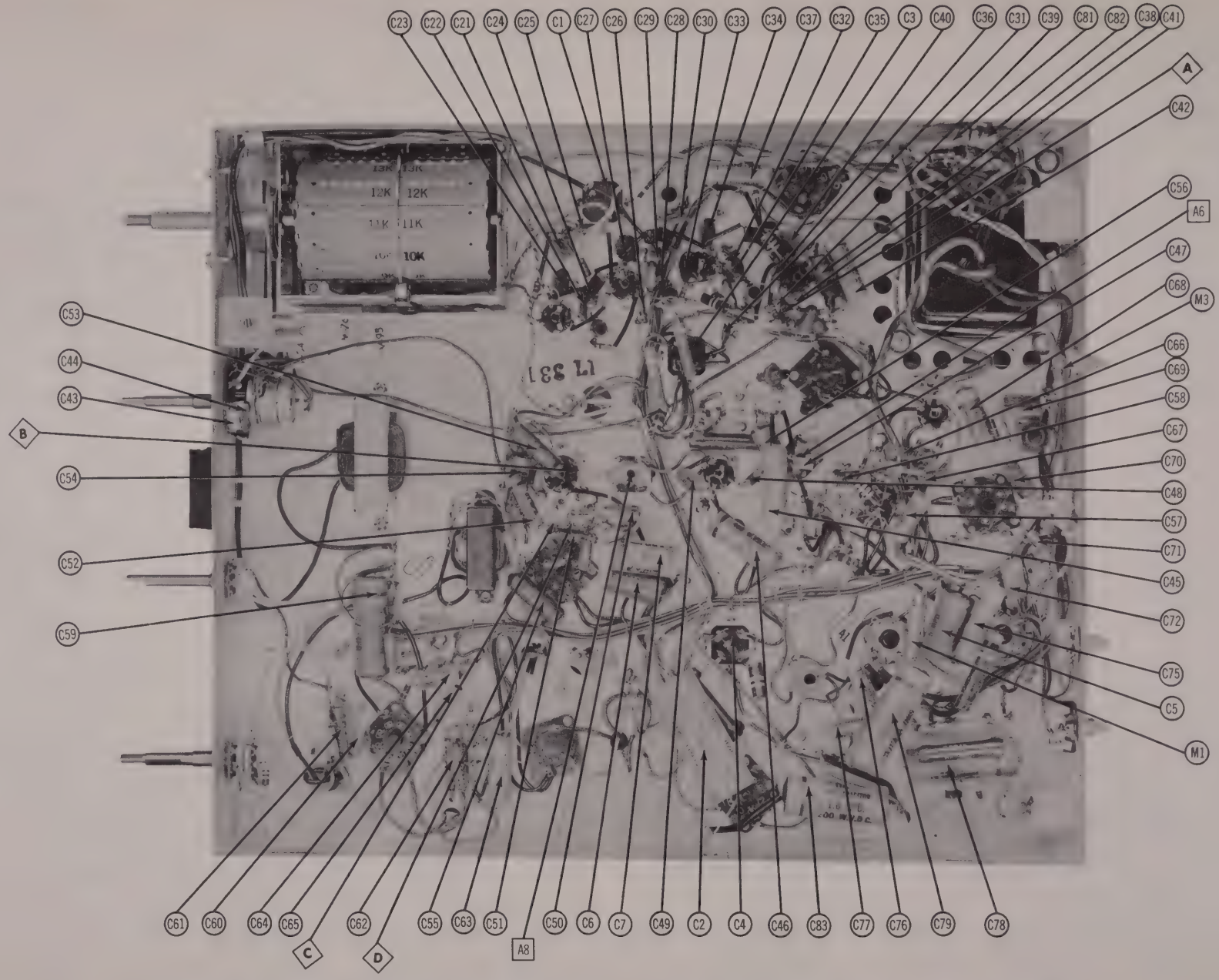


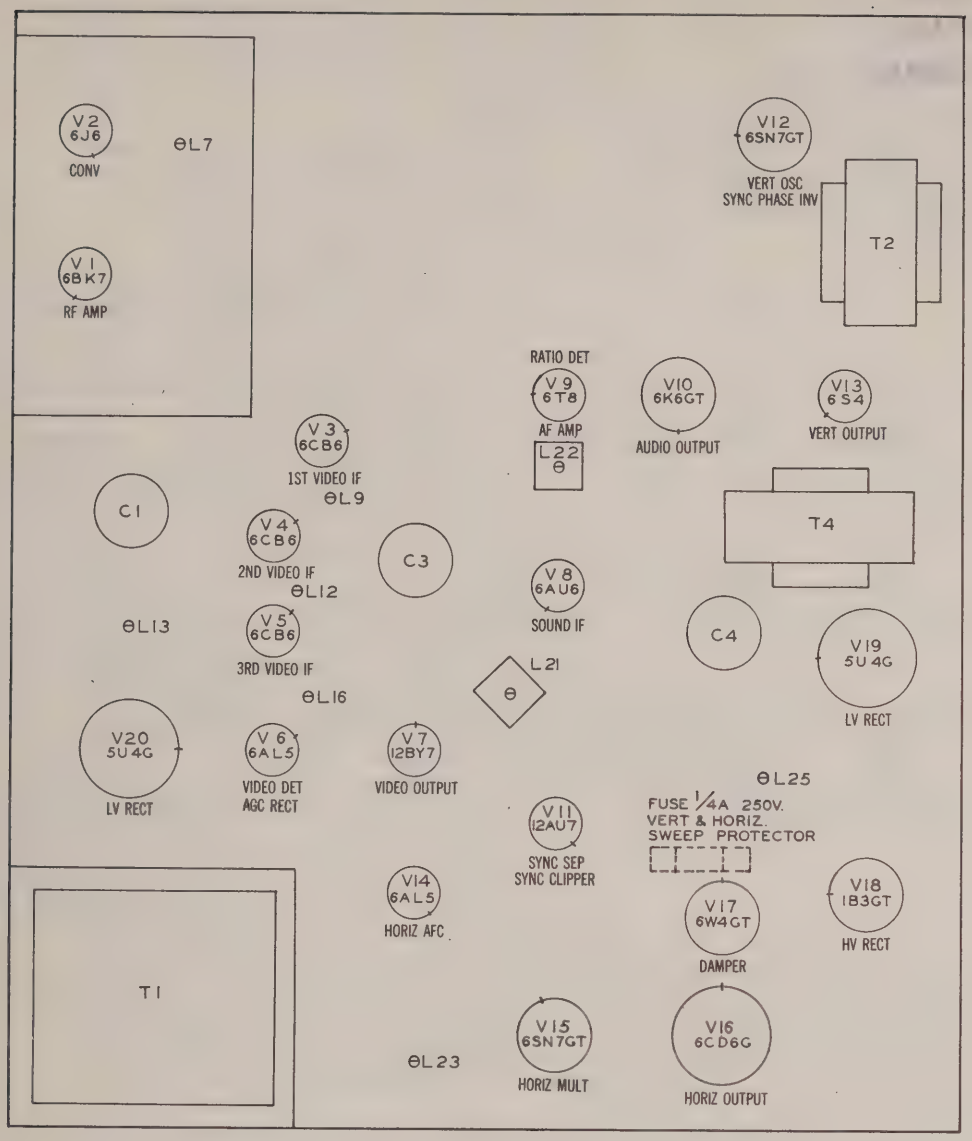
CHASSIS TOP VIEW

FADA MODELS
7T32, 77T32, 721



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound -V19, V20

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6, V7
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V7, V21
Has Pic, No Sound - V8, V9, V10
Overloaded picture - V6

SYNC FAILURE
No Vert. sync - V12
No Horiz. sync. - V12, V14, V15
No Vert. or Horiz. Sync - V11, V12

SWEEP FAILURE
No Raster, Has Sound - V15, V16, V17, V18, V21, Fuse (M1)
No Vertical Deflection - V13
Poor Vert. Linearity or Foldover - V12, V13
Poor Horiz. Linearity or Foldover - V15, V16, V17
Narrow Picture - V15, V16, V17, V19, V20
Vert. Off Freq. - V12
Horiz. Off Freq. - V14, V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

Disconnect the white wire from the junction of R23, R25 and C25 and connect the negative lead of a 4.5 volt battery to the same junction. Connect the positive lead to chassis.
Remove the converter tube, V2, from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	21.6MC (Unmod.)	Any	DC probe to point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2.	"	"	23.25MC	"	"	A2, A3	Adjust for maximum deflection. Attenuate generator output to maintain 2.5 volts reading at VTVM.
3.	"	"	25.7MC	"	"	A4, A5	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection. Leave the bias battery connected as before.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.6MC 22.7MC 26.1MC	Any	Vert. amp. thru 47KΩ to point (A). Low side to chassis.		Check for response curve similar to fig. 1 with markers as shown. If necessary retouch A2 thru A5 for desired response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe to point (B). Common to chassis.	A6, A7, A8	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point (C). Common to point (D)	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp. thru 47KΩ to point (B). Low side to chassis.	A6, A7, A8	Disconnect stabilizer capacitor C7. Adjust for maximum amplitude and symmetry as per fig. 2.
6.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A9	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 3. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A10. It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct any individual channel.
If adjustment of A10 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
The bias battery should be connected as under Video IF Alignment.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 47KΩ to point (A). Low side to chassis.	A11	Adjust to place the sound marker in notch as shown in fig. 4. The video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A12	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A13	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A14	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A15	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A16	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A18	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A19	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A20	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A21	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A22	

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

Leave the bias battery connected as under Video IF Alignment.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. amp. thru 47KΩ to point (E). Low side to chassis.	A23, A24, A25	Adjust for response curve similar to fig.5 with markers as shown.
9.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check all channels for response similar to fig.5. If markers fall below 70% on any channel make slight adjustment of A23, A24 and A25 with channel switch set for that channel. Recheck all channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177 MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

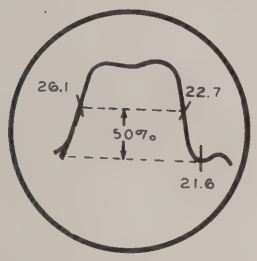


FIG. 1

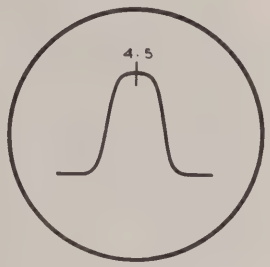


FIG. 2

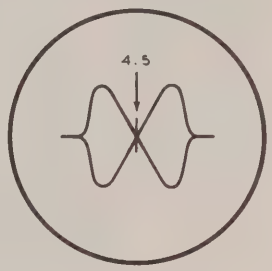


FIG. 3

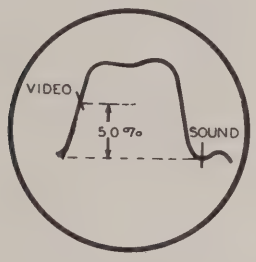


FIG. 4

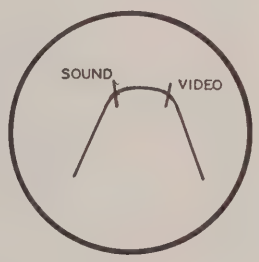
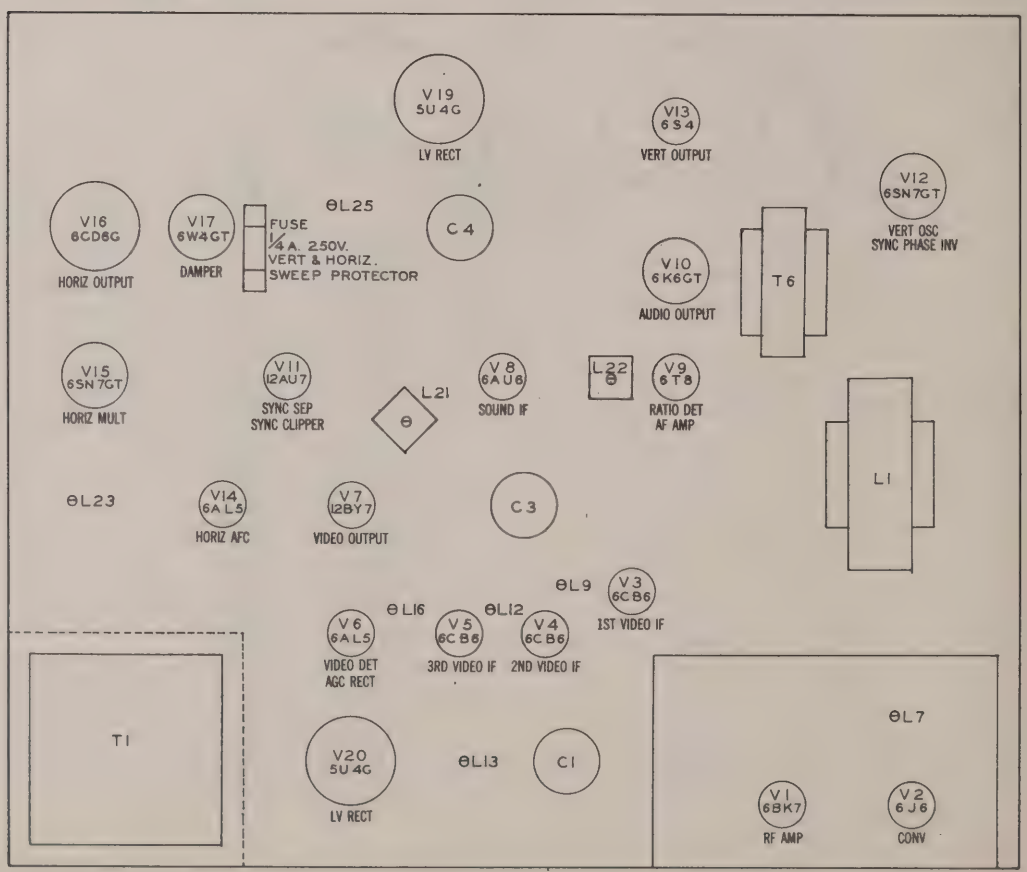


FIG. 5

RESISTANCE MEASUREMENTS

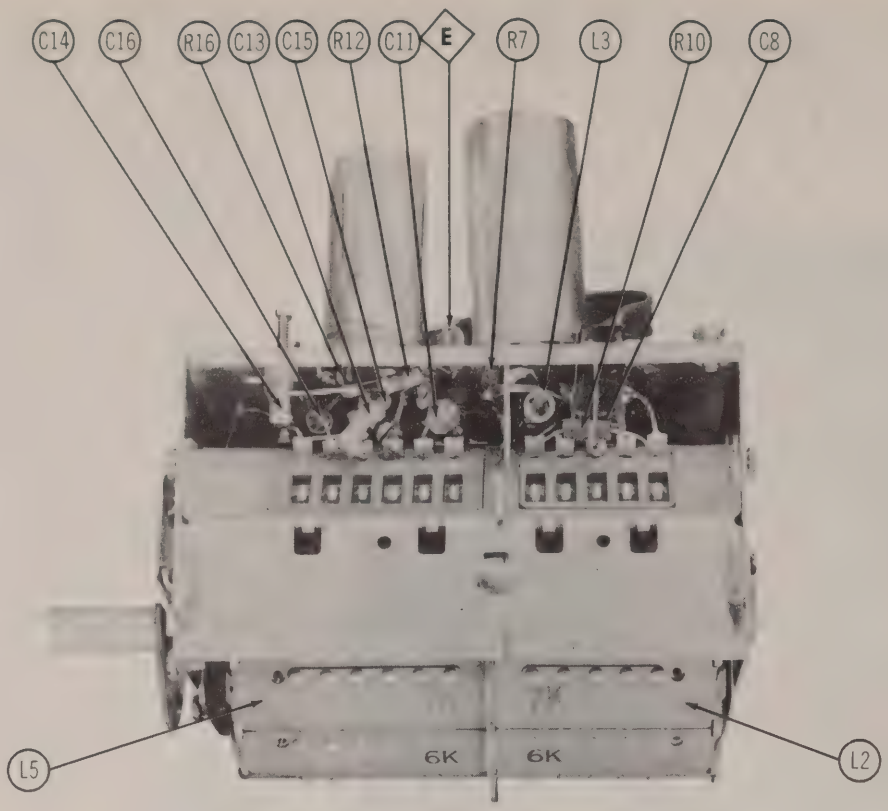
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BK7	INF	1.7Meg	0Ω	.1Ω	0Ω	†2.5KΩ	100KΩ	INF	0Ω
V 2	6J6	†14KΩ	†19KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1.7Meg	47Ω	.1Ω	0Ω	†3.8KΩ	†3.8KΩ	0Ω		
V 4	6CB6	1.7Meg	47Ω	.1Ω	0Ω	†3.7KΩ	†3.7KΩ	0Ω		
V 5	6CB6	.2Ω	120Ω	.1Ω	0Ω	†3.6KΩ	†13KΩ	0Ω		
V 6	6AL5	.2Ω	680KΩ	.1Ω	0Ω	500Ω	0Ω	5.6KΩ		
V 7	12BY7	250Ω	5.7KΩ	0Ω	0Ω	0Ω	.1Ω	†6KΩ	†20KΩ	0Ω
V 8	6AU6	47KΩ	0Ω	.1Ω	0Ω	†8.2KΩ	†8.2KΩ	0Ω		
V 9	6T8	INF	44KΩ	INF	.1Ω	0Ω	INF	0Ω	10Meg	†220KΩ
V 10	6K6GT	INF	.1Ω	†1.9KΩ	†1.5KΩ	470KΩ	INF	0Ω	680Ω	
V 11	12AU7	8.5KΩ	1.8Meg	0Ω	0Ω	0Ω	†42KΩ	1.8Meg	0Ω	.1Ω
V 12	6SN7GT	6.8Meg	†5.7KΩ	15KΩ	2.2Meg	#1.5Meg	0Ω	0Ω	.1Ω	
V 13	6S4	INF	1.2KΩ	2.2Meg	.1Ω	0Ω	2.2Meg	INF	INF	#8.9KΩ
V 14	6AL5	4.8Meg	4.8Meg	.1Ω	0Ω	6.8KΩ	0Ω	6.8KΩ		
V 15	6SN7GT	5.1Meg	#20KΩ	1.2KΩ	110KΩ	#165KΩ	1.2KΩ	0Ω	.1Ω	
V 16	6CD6G	INF	.1Ω	100Ω	470KΩ	470KΩ	INF	0Ω	†17KΩ	TOP CAP #52Ω
V 17	6W4GT	INF	INF	120KΩ	†565Ω	†571Ω	†565Ω	¶0Ω	¶.1Ω	
V 18	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #437Ω
V 19	5U4G	INF	15KΩ	INF	21Ω	INF	22Ω	INF	15KΩ	
V 20	5U4G	INF	15KΩ	INF	22Ω	INF	21Ω	INF	15KΩ	
V 21	17HP4	0Ω	18KΩ	PIN 6 500KΩ	PIN 10 #7.5KΩ	PIN 11 210KΩ	PIN 12 .1Ω			

AGC SWITCH SET IN "NORMAL AREA" POSITION
ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V19 & V20
# MEASURED FROM PIN 3 OF V17
¶ MEASURED FROM PIN 7 OF V17

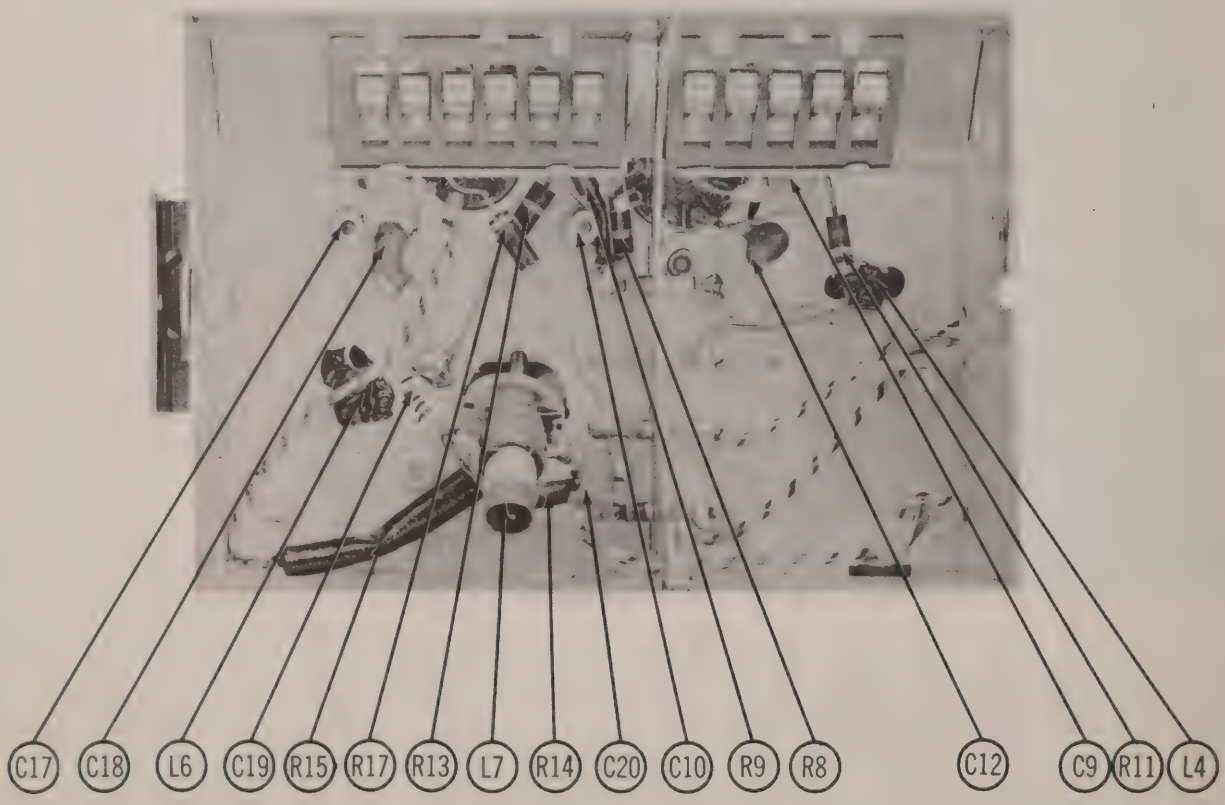


BOTTOM VIEW

TUBE PLACEMENT CHART

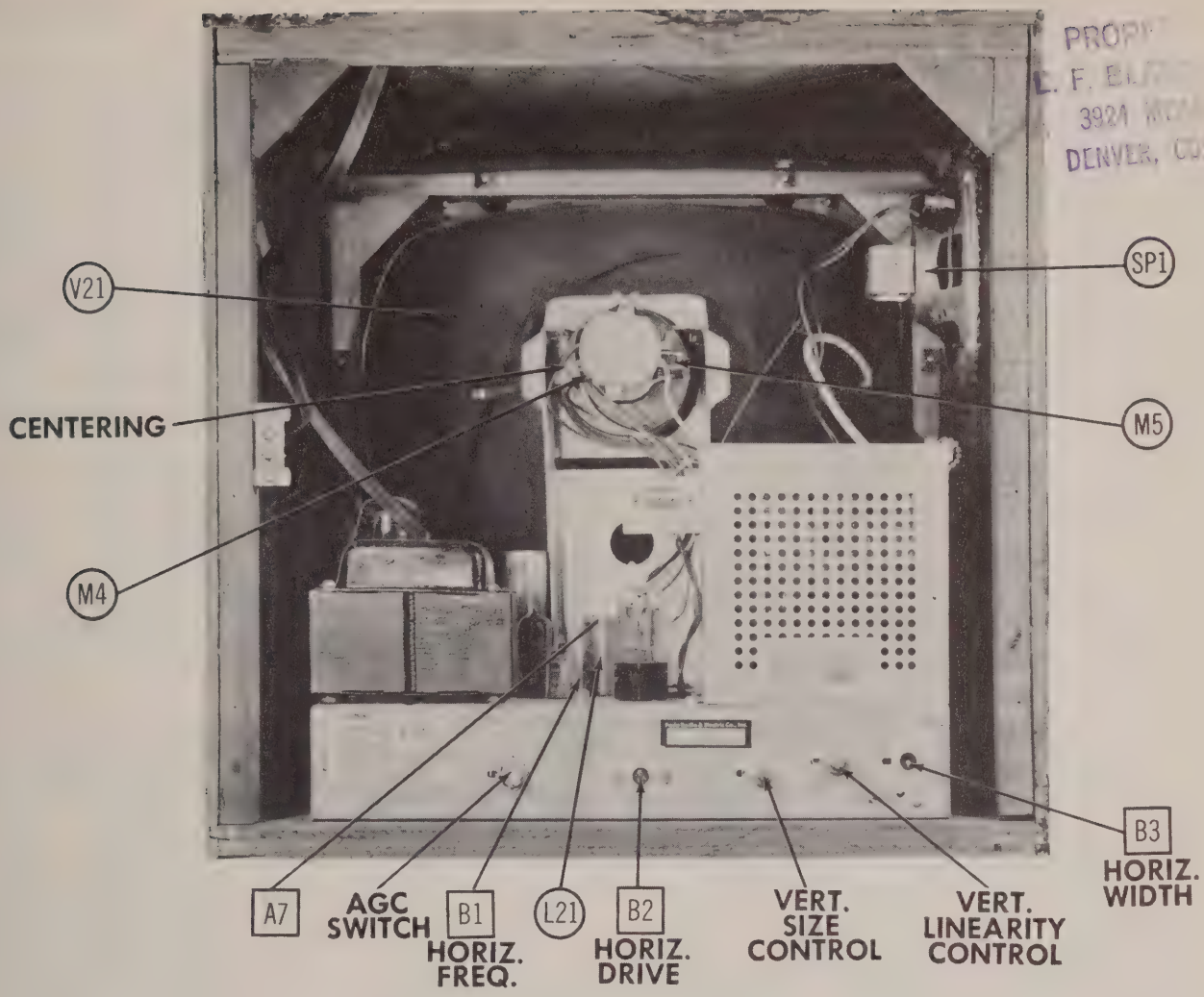


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

PROPE
L. F. EL
3924 W
DENVER, COLORADO



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) to the maximum counter clockwise position without the appearance of a vertical white line in the picture.

Adjust the width control slug (B3) for a picture slightly wider than enough to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

DISASSEMBLY INSTRUCTIONS

1. Remove 7 push on type control knobs from front panel.
2. Remove 9 wood screws. Remove rear cover.
3. Disconnect built-in antenna and speaker.
4. Remove 4 speaker nuts. Remove speaker.
5. Remove 2 wood screws. Remove antenna bracket.
6. Remove 4 chassis bolts. Remove chassis.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BK7	6BK7	9AJ	
B	RF Amplifier	6BQ7	6BQ7	9AJ	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V7A	Video Output	12BY7	12BY7		
V B	Video Output	6AG7	6AG7	8Y	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector-AF Amplifier	6T8	6T8	9E	
V10	Audio Output	6K6GT	6K6GT	7S	
V11	Sync Separator-Sync Clipper	12AU7	12AU7	9A	
V12	Vert. Oscillator-Sync Phase Inv.	6SN7GT	6SN7GT	8BD	
V13	Vert. Output	6S4	9AC		
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	6CD6G	6CD6G	5BT	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	9C	
V19	LV Rectifier	5U4G	5U4G	5T	
V20	LV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: FADA PART No.	REPLACEMENT DATA: SYLVANIA PART No.	RTMA BASE TYPE	NOTES
V21A	17HP4	17HP4	12C	
B	17RP4	17RP4	12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	475	22.79	AFB2-72		UPT6450		FP262	TVL-2830	
B	▲40	475								
C2	40	450	22.82	PRS450/40		BR4045A	NP0K-100	TC78	TVA-1712	
C3A	▲80	350	22.80D			UPT245-835		FP450	TVL-3727	
B	▲20	450				BR1035				
C	▲10	350								
C4A	▲20	450	22.81	AFH4-80		UPT22245-V10		FP437	TVL-3780 TVA-1310	
B	100	50								
C	▲30	450								
D	▲20	450								
C5	5	50	22.56	PRS150/4		BR550		TC30	TVA-1303	
C6	25	50	22.86	PRS50/25		BR255A		TC36	TVA-1306	
C7	1	150	22.70	PRS150/4		BBR-1-50	NP0K-2R2	TC31	TVA-1300	
C8	2.2				TCZ-2.2					
C9	3-9				829-10					
C10	.5-3				829-3			CT565A		
C11	120			SI120	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C12	1000			SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C13	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C14	.5-3				829-3			CT565A		
C15	30			SI20NP0	TCZ-20		NP0K-200	ZT-542	5TCC-Q2	
C16	10			SI10N750	TCN-10		N750K-100	NT-541	5TCU-Q1	
C17	.5-3				829-3			CT565A		
C18	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C19	10			SI10NP0	TCZ-10		NP0K-100	ZT-541	5TCC-Q1	
C20	120			SI120	D6-121	5GA-T12	GP2K-121	UC-5312	5GA-T12	
C21	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C22	1500		17.45	SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	
C23	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C24	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 2
C25	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 1
C26	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 2
C29	2		17.127				NP0K-020			
C30	47		17.130		TCZ-47		NP0L-470		5TCC-Q47	
C31	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C35	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 2
C36	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	Note 2
C37	.1	200	12.49	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C38	.01	600	12.72	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C39	3		17.131							
C40	5000		17.44	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C41	5		17.79	SI5	TCZ-4.7	5W5V5	GP1K-050	NT-555	5TCUB-V5	
C42	.1	200	12.49	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C43	680		17.108	SI680	D6-681	2R5T7	GP2K-681	UC-5368	5GA-T68	
C44	470		17.107	SI470	D6-471	5R5T5	GP2K-471	UC-5347	5GA-T47	
C45	.1	600	12.60	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C46	.1	400	12.75	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C47	2		17.59							
C48	39		17.105	SI39	D6-390	5W5Q4	GP1K-390	UC-5439	5GA-Q39	
C49	10000		17.80	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	Note 3
C50	▲20	500	17.125							
C51	.0039	400	12.71	P688-004	D6-392	PTE6D4	GP2-333-392	PT624	6TM-D4	
C52	.01	400	12.72	P488-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C53	.005	400	12.68	P688-005	D6-502	PTE6S5	GP2-333-502	PT625	6TM-D5	
C54	.022	400	12.82	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: FADA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C55	.005	400	12.83	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C56	.047	400	12.67	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C57	.022	400	12.82	P488-022	DF-203	PTE4S22		PT4122	4TM-S22	
C58	.01	400	12.72	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C59	.47	200	12.92	P288-47		PJ2P5		PT405	2TM-P47	
C60A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005		◆167.1	P688-005	◆PC-100	PTE6D5	GP2-333-502	PT625	◆101C1	
C	.005			P688-005		PTE6D5	GP2-333-502	PT625		
C61	.0047	600	12.68	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C62	.047	400	12.67	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C63	.1	400	12.75	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C64	1000		17.109	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C65	1000		17.109	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C66	.01	600	12.72	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C67	.0047	600	12.68	P688-0047	D6-472	PTE6D47	GP2-333-472	PT6247	6TM-D47	
C68	.047	400	12.67	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C69	3900	500	17.113	1464-004		1DR5D4		MCB463		
C70	330	500	17.69	1469-00035						
C71	390		17.38	SI390	D6-391	5R5T4	GP2K-391	UC-5339	5GA-T39	
C72	270	500	17.123	1468-0003	D6-271	5W5T3	GP2K-271	MC241	MS-33	
C73	20	1500	17.124							
C74	20	1500	17.124							
C75	.047	600	12.66	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C76	.047	400	12.67	P488-047		PTE4S47		PT4147	4TM-S47	
C77	.033	400	12.94	P488-033				PT4133		
C78	.22	600	12.77	684-25		PTE6P25		PT6025	6TM-P25	
C79	.22	600	12.77	684-25		PTE6P25		PT6025	6TM-P25	
C80	500	20000	17.116	HV20C	TV3-502	MM-C20T5	413-501		20DK-T5	
C81	.01	400	12.72	P488-01		PTE4S1		PT411	4TM-S1	
C82	.01	400	12.72	P488-01		PTE4S1		PT411	4TM-S1	
C83	.8	150	12.115							Note 1

Note 1. Not used in all models.
Note 2. Some models use 120MMF in this application (Part #17.106)
Note 3. Used with Ratio Det. Trans. Part #37.253.
Use 330MMF with Ratio Det. Trans. Part E37.230
◆ Items C60A, C60B, C60C, R67A, R67B, R67C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	750Ω	½	52.64	QJ-270*	RTV-109		WF751-T251	Contrast - Tapped ④ 500Ω - Wire Wound - Panel
B	500KΩ	½					UR55A	Volume - Rear
C	Switch		Not Req.				US-26	Attach to R1B
R2A	1Meg	½	52.66	QJ-168**	RTV-1U0	SBB-510	UF16L	Vert. Hold - Panel
B	50KΩ	½					UR54L	Horiz. Hold - Rear
R3A	50 KΩ	½	52.69	QU-123	AG-44-S	B-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
R4A	5000Ω	2	52.68	W-5000	A43-5000	VK-135	R5000L	Vert. Linearity - Wire Wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R4A
R5A	2.5Meg	½	52.24	QU-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	2.5Meg	½	52.24	QU-239	AG-84-S	AB-83	SU-565	Focus - See Note
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A

Note. Some models use alternate focus control (Part #52.74)
* CONCENTRIKIT EQUIVALENT - KIT K-3, BASE ELEMENTS & SHAFTS W17-105X & P4-124 (Panel) B13-133 & R1-212 (Rear) & SWITCH 76-1.
** CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-137 & P1-126 (Panel) B11-123 & R1-212 (Rear).

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R7	220KΩ 20%	½		BTS-220K	RF Amp. Grid
R8	180KΩ 5%	½		BTS-180K 5%	Voltage Divider
R9	1000Ω 20%	½		BTS-1000	RF Amp. Plate Decoupling
R10	22KΩ	½			Antenna Coil Shunt
R11	47KΩ 20%	½			RF Amp. Grid
R12	4700Ω	½		BTS-4700	Mixer Grid
R13	220KΩ 20%	½		BTS-220K	Mixer Grid
R14	15KΩ 20%	½		BTS-15K	Mixer Plate
R15	10Ω	½			Parasitic Suppressor
R16	10KΩ	½			Osc. Grid
R17	10KΩ	½			Osc. Plate
R18	330Ω	½	32.67	BTS-330	AGC Network
R19	470Ω 20%	½	32.173	BTS-470	Decoupling
R20	10KΩ	½	32.11		1st. Video IF Amp. Grid
R21	47Ω	½	32.197		1st. Video IF Amp.Cathode
R22	100Ω	½	32.2	BTS-100	Decoupling
R23	330Ω	½	32.67	BTS-330	AGC Network
R24	100Ω	½	32.2	BTS-100	Decoupling
R25	8200Ω	½	32.77		2nd. Video IF Amp. Grid
R26	47Ω	½	32.197		2nd. Video IF Amp. Cathode
R27	100Ω	½	32.2	BTS-100	Decoupling
R28	5600Ω	½	32.126	BTS-5600	3rd. Video IF Coil Shunt
R29	120Ω	½	32.188	BTS-120	3rd. Video IF Amp. Cathode
R30	10KΩ	1	32.11	BTA-10K	3rd. Video IF Amp. Screen
R31	100Ω	½	32.2	BTS-100	Decoupling
R32	5600Ω	½	32.126	BTS-5600	Video Det. Diode Load - See Note 1
R33	1Meg	½	32.33	BTS-1Meg	AGC Network
R34	680KΩ	½	32.35	BTS-680K	AGC Rectifier Diode Load
R35	39KΩ	1	32.103	BTA-39K	AGC Network
R36	1Meg	½	32.33	BTS-1Meg	AGC Network
R37	82Ω	½	32.125		Parasitic Suppressor - See Note 2
R38	82KΩ	1	32.412	BTA-82K	Bleeder - See Notes 3 & 5
R39	39KΩ	2	32.660	BTB-39K	Video Output Screen
R40	39KΩ	2	32.660	BTB-39K	Video Output Screen
R41	5000Ω	10	117.80	1 3/4A-5000	Video Output Plate - Wire Wound
R42	470KΩ	½	32.92	BTS-470K	Video Peaking
R43	330KΩ	½	32.205	BTS-330K	Picture Tube Cathode
R44	22KΩ 20%	½	32.183	BTS-22K	Voltage Divider

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: FADA PART No.	IRC PART No.	IDENTIFICATION CODES
R45	47KΩ 20%	½	32.15	BTS-47K	Sound IF Amp. Grid
R46	4700Ω	1	32.74	BTA-4700	Sound IF Amp. Decoupling
R47	15KΩ	½	32.12	BTS-15K	De-Emphasis
R48	22KΩ	½	32.15	BTS-22K	Ratio Det. Diode Load
R49	22KΩ	½	32.15	BTS-22K	Ratio Det. Diode Load
R50	10Meg 20%	½	32.99	BTS-10Meg	AF Amp. Grid
R51	220KΩ 20%	½	32.18	BTS-220K	AF Amp. Plate
R52	470KΩ	½	32.92	BTS-470K	Output Grid
R53	680Ω	1	32.115	BTA-680	Output Cathode
R54	470Ω	1	32.399	BTA-470	Output Decoupling
R55	1.8Meg	½	32.208	BTS-1.8Meg	Sync Separator Grid
R56	33KΩ	½	32.14	BTS-33K	Isolation
R57	10KΩ	½	32.11	BTA-10K	Voltage Divider
R58	47KΩ	½	32.15	BTS-47K	Sync Separator Plate
R59	1.8Meg	½	32.208	BTS-1.8Meg	Sync Clipper Grid
R60	39KΩ	1	32.103	BTA-39K	Sync Clipper Plate
R61	6.8Meg	½	32.46	BTS-6.8Meg	Sync Phase Inv. Grid
R62	1000Ω	½	32.8	BTS-1000	Sync Phase Inv. Cathode
R63	2200Ω	½	32.60	BTS-2200	Sync Phase Inv. Plate
R64	2200Ω	½	32.60	BTS-2200	Sync Phase Inv. Cathode
R65	12KΩ	½	32.142	BTS-12K	Voltage Divider
R66	68KΩ	1	32.411	BTA-68K	Voltage Divider
R67A	22KΩ	½		BTS-22K	Integrator Network
B	8200Ω	½	◆167.1	BTS-8200	Integrator Network
C	8200Ω	½		BTS-8200	Integrator Network
R68	1.5Meg	½	32.147	BTS-1.5Meg	Vert. Osc. Grid
R69	47KΩ 20%	½	32.15	BTS-47K	Voltage Divider
R70	1Meg	½	32.33	BTS-1Meg	Vert. Osc. Plate
R71	2.2Meg 20%	½	32.34	BTS-2.2Meg	Voltage Divider
R72	47KΩ 20%	½	32.15	BTS-47K	Vert. Osc. Decoupling
R73	8200Ω	½	32.77	BTS-8200	Vert. Peaking
R74	2.2Meg	½	32.34	BTS-2.2Meg	Vert. Output Grid
R75	330Ω	½	32.67	BTS-330	Vert. Output Cathode
R76	7500Ω	10	117.81	1 3/4A-7500	Vert. Output Decoupling - Wire Wound
R77	100KΩ	½	32.39	BTS-100K	Horiz. AFC Diode Load
R78	100KΩ	½	32.39	BTS-100K	Horiz. AFC Diode Load
R79	4.7Meg	½	32.98	BTS-4.7Meg	Horiz. AFC Diode Load
R80	470KΩ	½	32.92	BTS-470K	Horiz. AFC Filter
R81	5600Ω	½	32.126	BTS-5600	Horiz. MV Plate
R82	1200Ω 5%	½	32.263	BTS-1200 5%	Horiz. MV Cathode
R83	100KΩ	½	32.89	BTS-100K	Horiz. MV Grid
R84	150KΩ	½	32.90	BTS-150K	Horiz. MV Plate
R85	15KΩ	2	32.655	BTB-15K	Horiz. MV Decoupling
R86	100Ω	½	32.2		Parasitic Suppressor
R87	470KΩ	½	32.92	BTS-470K	Horiz. Output Grid
R88	100Ω	2	32.635	BW-2-100	Horiz. Output Cathode
R89	17.5KΩ	10	117.71	1 3/4A-17.5K	Horiz. Output Screen - Wire Wound
R90	6800Ω	½	32.10	BTS-6800	Horiz. Feedback
R91	3.3Ω	½	32.62		HV Rectifier Filament - Wire Wound
R92	100KΩ	1	32.373		HV Filter
R93	500Ω	20	117.74	2D-500	Filter - Wire Wound
R94	500Ω	20	117.74	2D-500	Filter - Wire Wound
R95	500Ω	20	117.74	2D-500	Filter - Wire Wound
R96	2500Ω	25	117.83	4½E-2500	Filter - Wire Wound
R97	330Ω	½		BTS-330	Balancing - See Note 4
R98	47KΩ	½	32.15	BTS-47K	Horiz. Hold Control Shunt

Note 1. Some models use a 8200Ω resistor in this application.
Note 2. Some models use a 120Ω resistor in this application.
Note 3. Some models use a 39KΩ resistor in this application.
Note 4. Used only with Ratio Det. Trans. part #37.230.
Note 5. Not used in all models.
◆ Items R67A, R67B, R67C, C60A, C60B, C60C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: FADA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ② 2.25A.	710VCT .250ADC	5VAC ② 6A	6.3VAC ② 1.2A SEC. 4 6.3VAC ② 8.7A	42.61		P-3059	TP-360	R-37BC

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: FADA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	130Ω	1100Ω	42.53	A-8111	A-3000	TBO-1 ①	A-97X	Vert. Osc. Trans.
T3	429Ω	6Ω Tap	37.255		HVO-7		D-15	Horiz. Output Trans.
	Tap ② ④ 44Ω	② 5.2Ω						
		SEC. 2 .7Ω						
		SEC. 3 0Ω						
		SEC. 4 0Ω						
T4	1480Ω Tap ④ 10.5Ω		42.62	A-8123	A-3037	TSO-5 ③	A-99X ③	Vert. Output Trans.
T5A	14Ω		37.261	DY-8	MDF-70	TY-3	Y-17	Horiz. Deflection Coils
B	65Ω							Vert. Deflection Coils

① Mount on top of chassis.
② Connect red lead to green lead.
③ Drill one new mtg. hole.

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FADA MODELS 7T32, 7T132, 721

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		FADA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T6	4.5KΩ	2.6Ω	375Ω	.4Ω	42.57	A-3877	A-2930	RO-8	S-3X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	FADA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6"	PM	2.6Ω	107.46	ST-108 Mod. P6-X	6A1	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	FADA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.250	60Ω	1.5Hy.	42.56	C-2326 ①	C-2996 ①	TR-1733 ①	C-17X ①

① Drill one new mtg. hole

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	FADA PART No.	MERIT PART No.	
L2	Ant. Coils	0Ω				
L3	RF Choke	0Ω				
L4	Fil. Choke	0Ω				
L5	RF, Mixer Grid & Osc.	0Ω				
L6	Fil. Choke	0Ω				
L7	1st. Video IF	.8Ω				
L8	Fil. Choke	0Ω		37.89		
L9	2nd. Video IF	.2Ω		37.99	♦TV-102	
L10	Fil. Choke	0Ω		37.89		
L11	RF Choke	1.6Ω		37.197		
L12	3rd. Video IF	.2Ω		37.99	♦TV-102	
L13	Sound Trap	0Ω		37.268		
L14	Fil. Choke	0Ω		37.89		
L15	RF Choke	1.6Ω		37.197		
L16	4th. Video IF	.2Ω		37.99	♦TV-102	
L17	Peaking Coil	4.7Ω		37.234		Blue Dot, 120 Microhenries
L18	Peaking Coil	12.5Ω		37.235	TV-188	Blue and Yellow Dots, 600 Microhenries
L19	Peaking Coil	6.4Ω		37.236	*TV-184	Green Dot, 190 Microhenries, wound on 18K resistor
L20	Peaking Coil	6.8Ω		37.237	TV-185	Blue & White Dots, 245 Microhenries
L21	Sound IF	1.8Ω	1.8Ω	37.252	TV-113	
L22	Ratio Det.	5.3Ω	1.8ΩCT	37.253	TV-115	Tertiary Winding .6Ω
L23	Horiz. Osc.	75Ω		37.233	TV-163	
L24	Width Coil	2.3Ω		37.248	MWC-2	
L25	Horiz. Lin.	8Ω		37.250		Tap @ 4.8Ω

* Parallel with 18K resistor

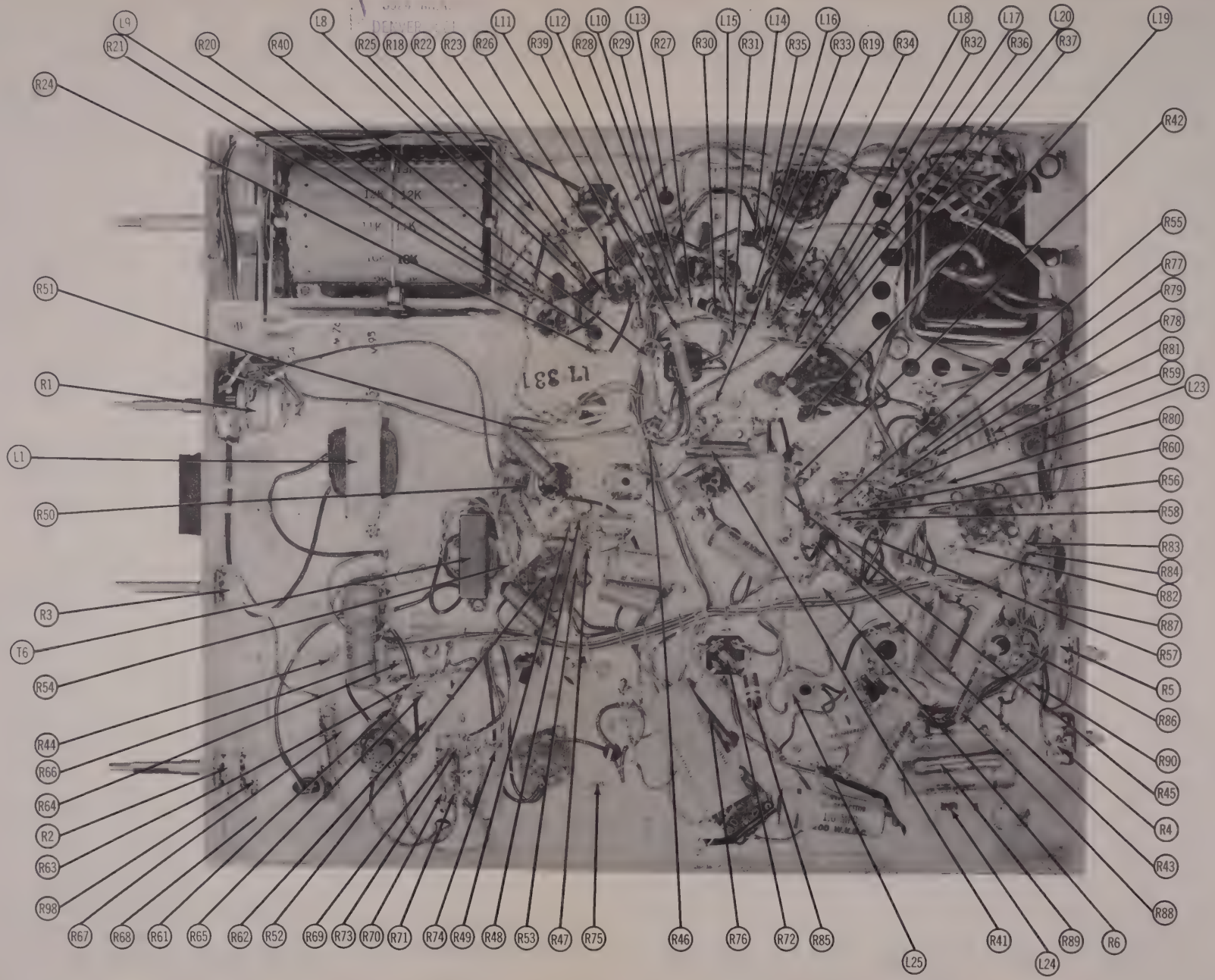
♦ Merit part #TV-112 may also be used in this application.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			FADA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	BEL	1/4 A. 250 V.			218.250 (3AG-P/T)		GJV 1/4	

MISCELLANEOUS

ITEM No.	PART NAME	FADA PART No.	NOTES
M2	RF Tuner	42.71	Complete with Tubes
M3	Switch	47.30	AGC
M4	Centering Magnet	112.37	
M5	Ion Trap	112.39	
B2	Trimmer	132.18	Horiz. Drive (25-280MMF)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PHOTOFACT* Folder

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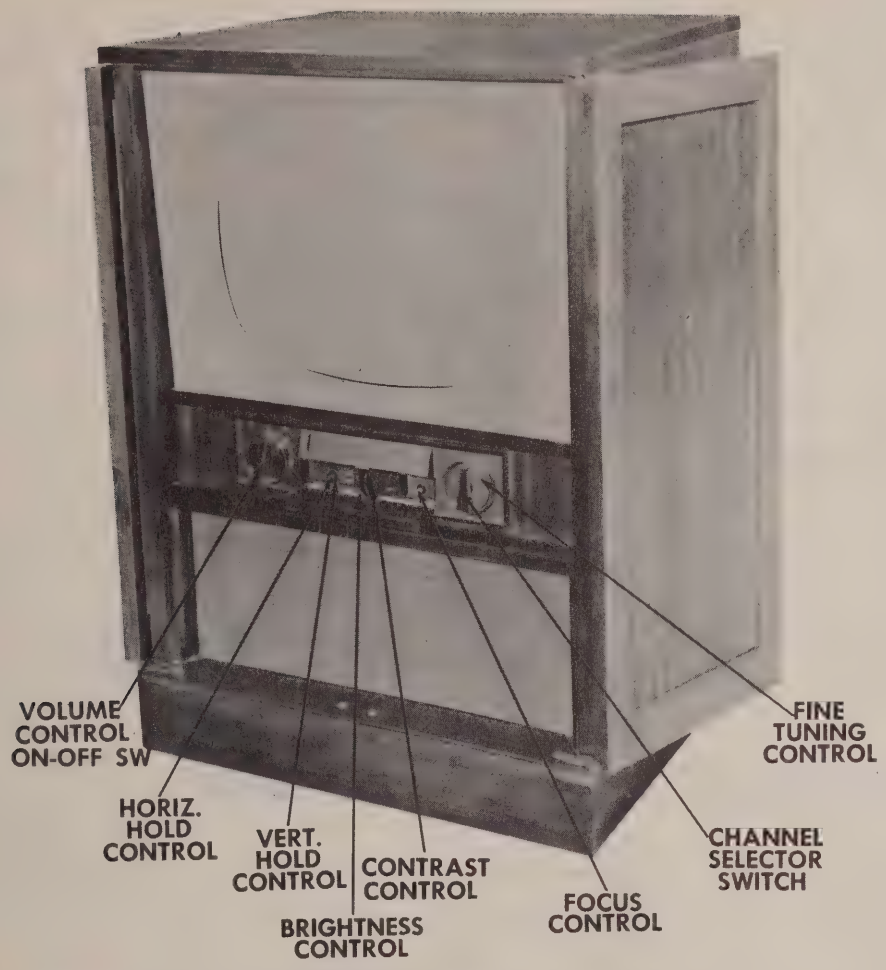
*TRADE MARK

HALLICRAFTERS MODELS 1005, 1006, 1015, 1016, 1017, 1018, 1019 (Ch. A1100D)



HALLICRAFTERS 1015

TRADE NAME	Hallicrafters Models 1005, 1006, 1015, 1016, 1017, 1018, 1019 (Ch. A1100D)
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.75 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13

INDEX

Alignment Instructions 6, 7
Drive Cord Stringing 18
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 18
Parts List and Descriptions 14, 15, 16
Photographs
- Cabinet - Rear view 11
- Capacitor and Alignment Identification 4, 9
- Chassis - Top View 3
- RF Tuner 10
- Resistor and Inductor Identification 12, 17

Resistance Measurements 8
Schematic (Alternate RF Tuner) 13
Schematic (TV) 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube placement Chart (Top View) 5

HALLICRAFTERS MODELS 1005, 1006, 1015, 1016, 1017, 1018, 1019 (Ch. A1100D)

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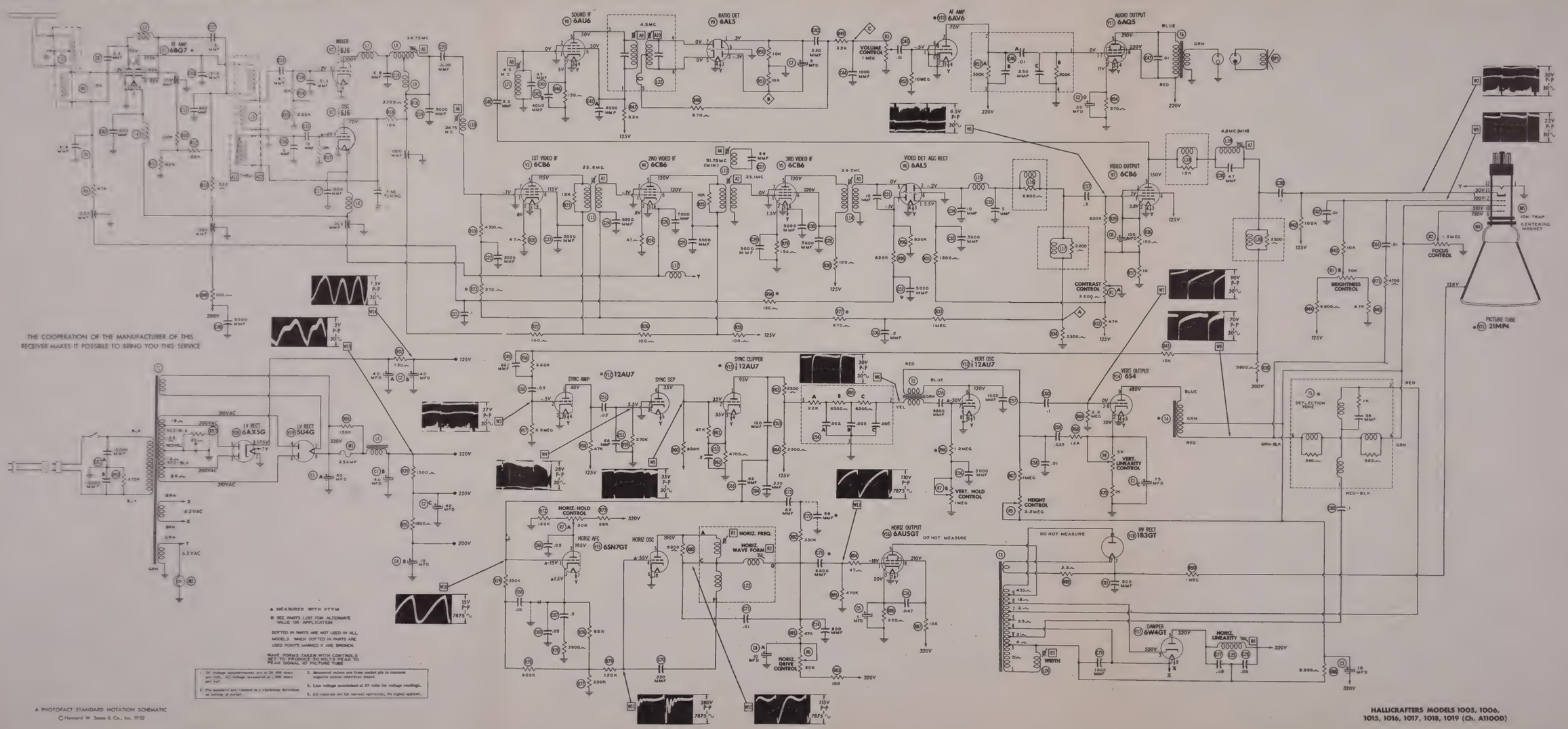
RF AMP V1 6BQ7
MIXER V2 6J6
OSC V3 6J6
SOUND IF V8 6AU6
RATIO DET V9 6AL5
AF AMP V10 6AV6
AUDIO OUTPUT V11 6AQ5
1ST VIDEO IF V3 6CB6
2ND VIDEO IF V4 6CB6
3RD VIDEO IF V5 6CB6
VIDEO DET AGC RECT V6 6AL5
VIDEO OUTPUT V7 6CB6
SYNC AMP V12 12AU7
SYNC SEP
SYNC CLIPPER V13 12AU7
VERT OSC V13 12AU7
VERT OUTPUT V14 6S4
HORIZ. HOLD CONTROL
HORIZ AFC V15 6SN7GT
HORIZ OSC
HORIZ. FREQ.
HORIZ. WAVE FORM
HORIZ. DRIVE CONTROL
HORIZ OUTPUT V16 6AU5GT
DO NOT MEASURE
HV RECT V18 1B3GT
DAMPER V17 6W4GT
HORIZ. LINEARITY
WIDTH
LV RECT V19 6AX5G
LV RECT V19 5U4G
VOLUME CONTROL 1 MEG
CONTRAST CONTROL 2 500
BRIGHTNESS CONTROL
FOCUS CONTROL 1.5 MEG
ION TRAP CENTERING MAGNET
PICTURE TUBE V21 21MP4
13 KV
VERT. LINEARITY CONTROL
HEIGHT CONTROL 2.5 MEG
VERT. HOLD CONTROL 1 MEG
DEFLECTION YOKE
FINE TUNING
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
▲ MEASURED WITH VTVM
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROWN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt. AC voltage measured at 1,000 ohms per volt.
2. Measured values are from socket pin to common negative unless otherwise stated.
3. Pin numbers are counted in a clockwise direction as bottom of socket.
4. Low voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

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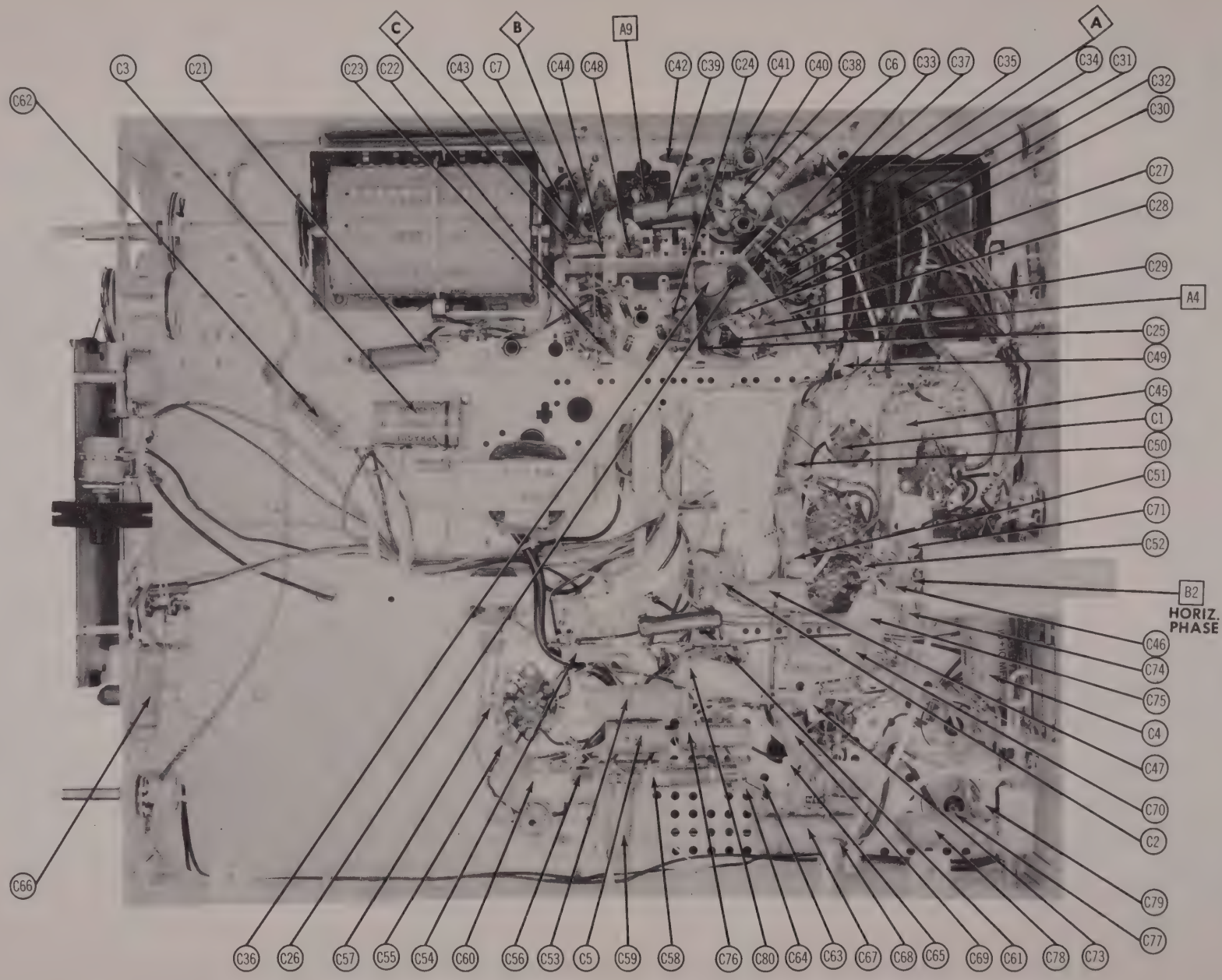
HALLICRAFTERS MODELS 1005, 1006, 1015, 1016, 1017, 1018, 1019 (Ch. A1100D)

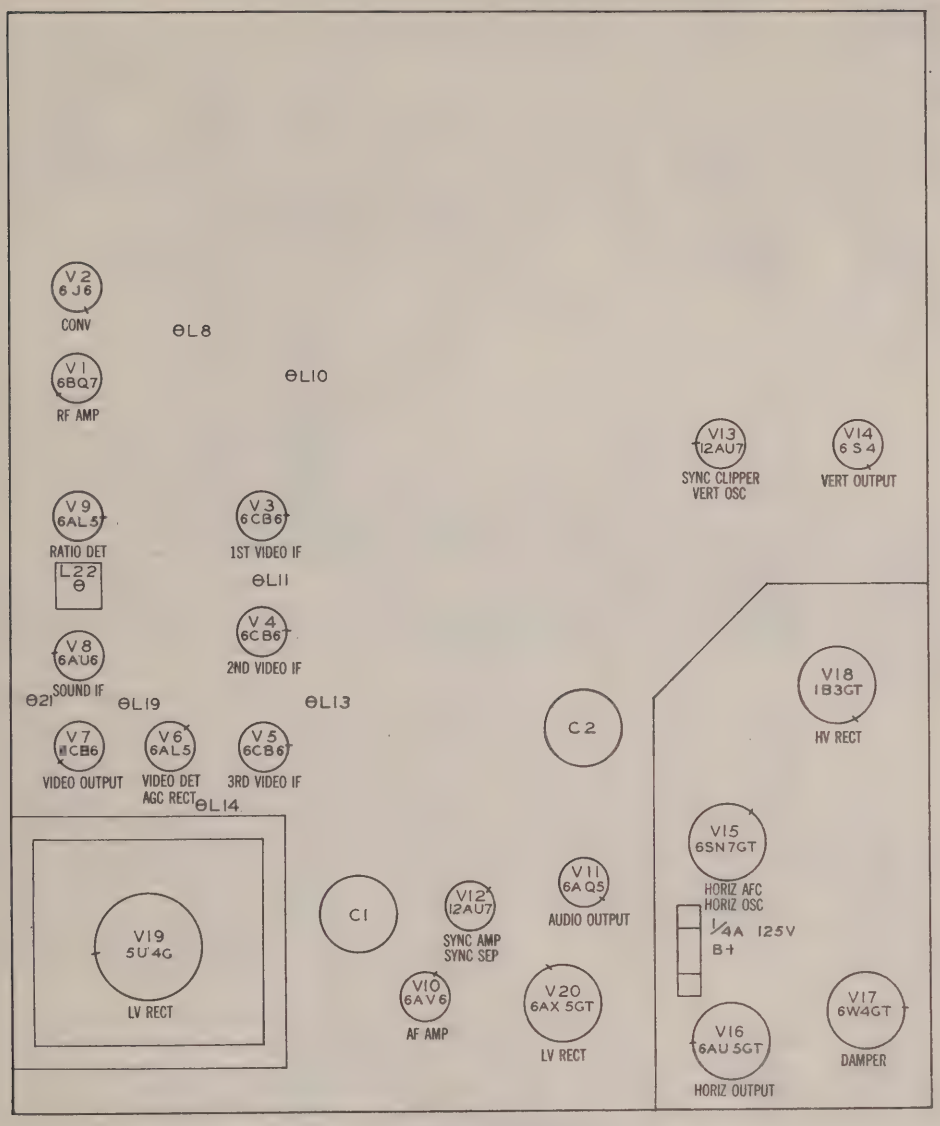
HALLICRAFTERS MODELS 1005, 1006, 1015, 1016, 1017, 1018, 1019, (Ch. A1100D)

CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - V19, V20, Fuse (M1)

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6, V7
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V7, V21
Has Pic, No Sound - V8, V9, V10, V11
Overloaded Picture - V6

SYNC FAILURE
No Vert. Sync -V13
No Horiz. Sync -V13, V15
No Vert. or Horiz. Sync - V12, V13

SWEEP FAILURE
No Raster, Has Sound - V15, V16, V17, V18, V21
No Vertical Deflection - V14
Poor Vert. Linearity or Foldover - V13, V14
Poor Horiz. Linearity or Foldover - V15, V16, V17
Narrow Picture - V15, V16, V17, V19, V20
Vert. Off Freq. - V13
Horiz. Off Freq. - V13, V15

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, V15.
To set the dial pointer, turn the tuner to Channel 2 and set the pointer to coincide with the 2 on the dial scale.

VIDEO IF ALIGNMENT

These receivers employ one of two tuner, Hallicrafters part #11377 or part #1D1284. These tuners differ considerably in the converter plate circuit.
Tuner 11377 has two single tuned coils, one mounted on the tuner proper and the other on the main chassis adjacent to the tuner. Tuner #1D1284 has a double tuned transformer mounted on the main chassis. Alignment procedure for both tuners is given.
Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
The bottom core of L13 and the cores of L19 and L21 are concealed by wax, which must be removed before any adjustments are made.

VIDEO IF ALIGNMENT FOR CHASSIS USING TUNER #11377

During adjustment of A5 shunt R19 with a 1000 ohm resistor. Remove resistor after adjustment is completed.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	25.6MC (Unmod.)	Any	DC probe to point (A). Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	24.5MC	"	"	A3	"
4.	"	"	21.75MC	"	"	A4	Adjust for MINIMUM deflection.
5.	"	"	24.75MC	"	"	A5, A6	Adjust for maximum deflection.

VIDEO IF ALIGNMENT FOR CHASSIS USING TUNER #1D1284

During step 1 alternate loading of the First IF Transformer is required. Connect a 1000 ohm resistor across the secondary winding while adjusting primary winding, the connect the resistor across the primary during adjustment of the secondary.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24.75MC (Unmod.)	Any	DC probe to point (A). Common to chassis.	A5, A6	Adjust for maximum deflection.
2.	"	"	25.6MC	"	"	A1	"
3.	"	"	23.1MC	"	"	A2	"
4.	"	"	24.5MC	"	"	A3	
5.	"	"	21.75MC	"	"	A4	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.75MC 26.25MC	Any	Vert. amp. to point (A). Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A1 thru A6 for proper response.

4.5MC TRAP ADJUSTMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod.)	Any	DC probe thru crystal diode detector (fig. 2) to pin 11 of picture tube Common to chassis.	A7	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.005MFD	High side to point (A). Low side to chassis.	4.5MC (Un mod.)	Any	DC probe to point (B). Common to chassis.	A8, A9	Adjust for maximum deflection.
9.	"	"	"	"	DC probe to point (C). Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 2120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.005MFD	High side to point (A). Low side to chassis.	4.5 MC (450KC Swp)	4.5MC	Any	Vert. amp. to point (B). Low side to chassis.	A8, A9	Disconnect stabilizer capacitor C7. Adjust for curve of maximum amplitude and symmetry as per fig. 3.
9.	"	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A10	Reconnect capacitor C7. Adjust so that 4.5MC occurs at center of crossover lines as per fig. 4. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

ALIGNMENT INSTRUCTIONS (CONT.)

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OSCILLATOR ALIGNMENT FOR TUNER #11377

The channel oscillator adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Remove the dummy converter tube and replace the original 6J6 in its socket.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213. MC. (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point A. Low side to chassis.	A11	Adjust to place sound marker in notch as per fig. 5. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A12	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A13	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A14	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A15	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A16	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A17	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A18	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A19	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A20	
			63 MC (10MC Swp)	61.25MC 65.75MC	3		A21	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A22	

OSCILLATOR ALIGNMENT FOR TUNER #ID1284

Complete oscillator alignment may not be necessary.
If the oscillator seems to be off requency approximately the same amount for a majority of the channels it may be possible to correct them in one step using A11.
It should be noted that this is an all channel oscillator circuit adjustment and should not be used to correct for any individual channel.
If adjustment of A11 will not bring all channels well within the range of the fine tuning control it will be necessary to adjust the channel strip adjustment for each channel that is off frequency. The channel adjustment screws are reached through a hole just to the right of the channel switch shaft.
The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213 MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point A. Low side to chassis.	A12	Adjust to place sound marker in notch as per fig. 5. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

The RF and Mixer portions of these tuners have been properly aligned at the factory and are very stable. Alignment of these portions should not be required in the field.

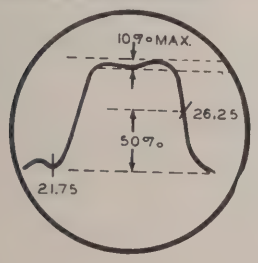


FIG. 1

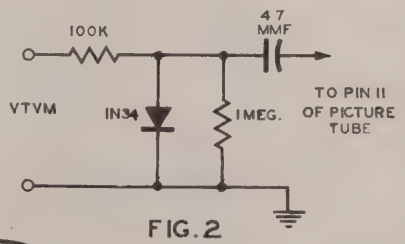


FIG. 2

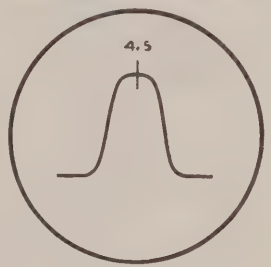


FIG. 3

FIG. 4

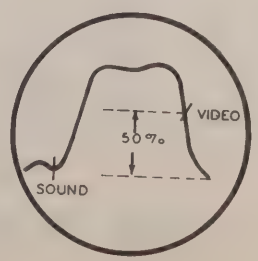
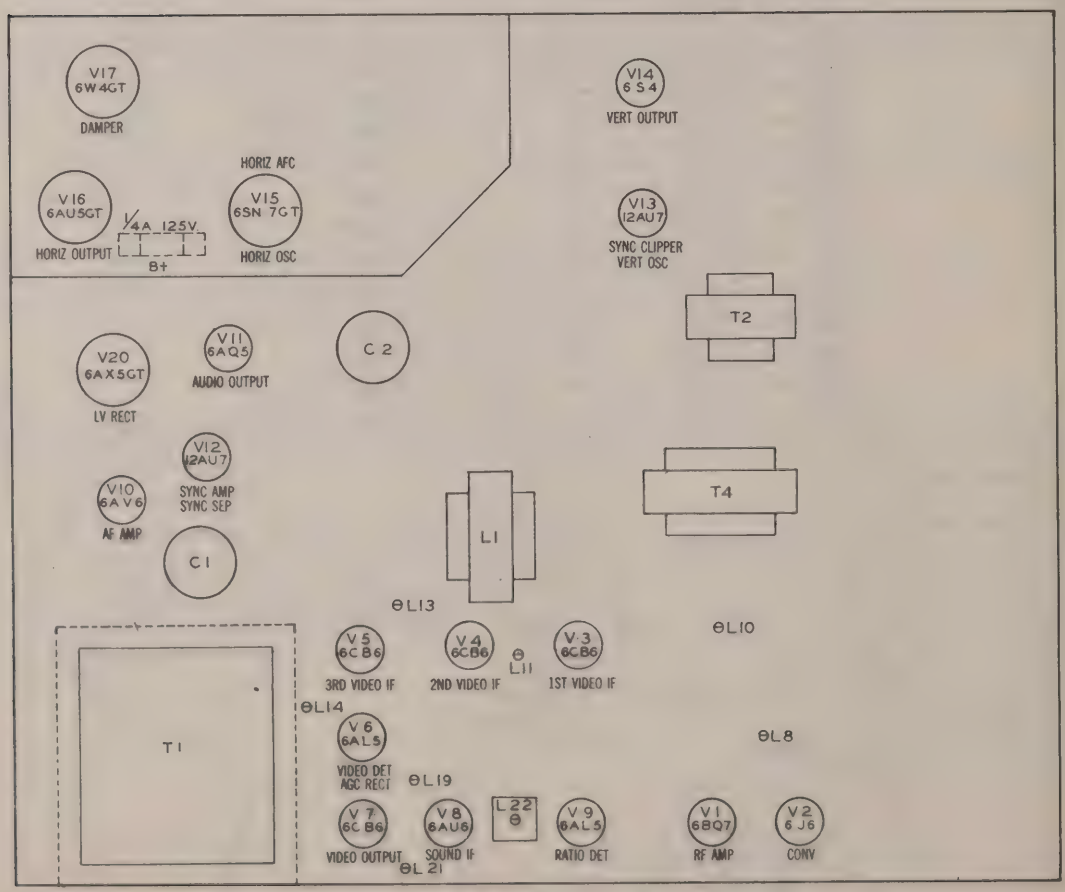


FIG. 5

RESISTANCE MEASUREMENTS

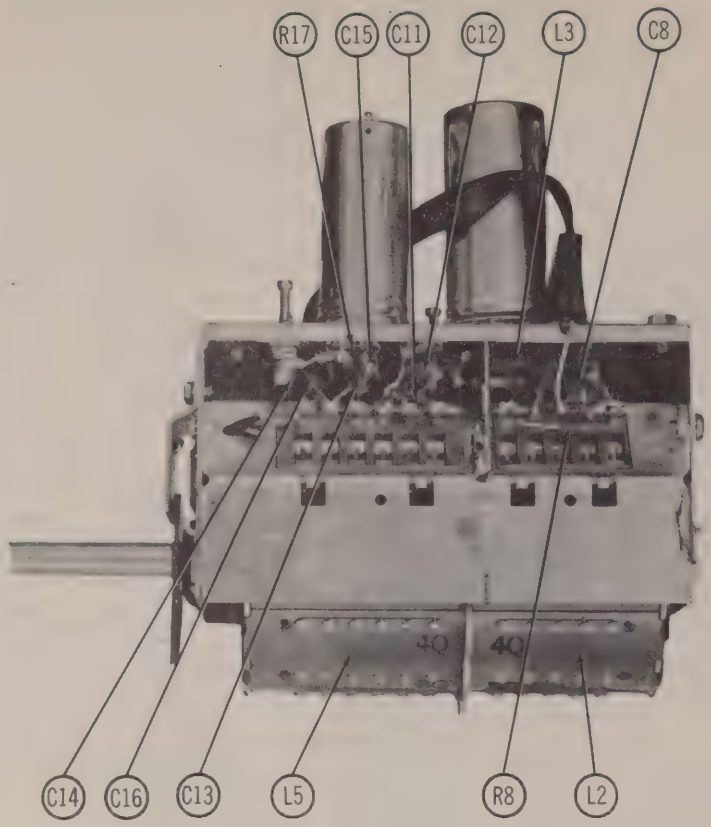
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7	INF	1.6Meg	0Ω	.1Ω	0Ω	†4.8KΩ	150KΩ	INF	0Ω
V 2	6J6	■11KΩ	■4.3KΩ	.1Ω	0Ω	220KΩ	10KΩ	0Ω		
V 3	6CB6	1Meg	47Ω	0Ω	.1Ω	■950Ω	■950Ω	0Ω		
V 4	6CB6	1Meg	47Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 5	6CB6	.2Ω	150Ω	0Ω	.1Ω	■850Ω	■850Ω	0Ω		
V 6	6AL5	2.4KΩ	3.3KΩ	.1Ω	0Ω	.2Ω	0Ω	820KΩ		
V 7	6CB6	220KΩ	600Ω	.1Ω	0Ω	†8.8KΩ	■750Ω	600Ω		
V 8	6AU6	1Ω	0Ω	0Ω	.1Ω	■22KΩ	■22KΩ	150Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	1Meg	0Ω	1Meg		
V 10	6AV6	10Meg	0Ω	0Ω	.1Ω	0Ω	0Ω	†500KΩ		
V 11	6AQ5	500KΩ	270Ω	0Ω	.1Ω	†2KΩ	†1.7KΩ	500KΩ		
V 12	12AU7	■47KΩ	2.2Meg	0Ω	.1Ω	.1Ω	51KΩ	0Ω	270KΩ	0Ω
V 13	12AU7	■5.1KΩ	51KΩ	4.7KΩ	.1Ω	.1Ω	#2.5Meg	1.5Meg	0Ω	0Ω
V 14	6S4	INF	1.8KΩ	2.2Meg	0Ω	1Ω	2.2Meg	INF	INF	#3.8KΩ
V 15	6SN7GT	1.5Meg	†60KΩ	410KΩ	480KΩ	†80KΩ	0Ω	.1Ω	0Ω	
V 16	6AU5GT	470KΩ	0Ω	220Ω	INF	#18Ω	INF	.1Ω	†15KΩ	
V 17	6W4GT	INF	INF	270KΩ	INF	†100Ω	INF	#27Ω	#27Ω	
V 18	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #471Ω
V 19	5U4G	INF	50KΩ	INF	19Ω	INF	20Ω	INF	50KΩ	
V 20	6AX5GT	#30Ω	0Ω	12 Ω	INF	12Ω	#30Ω	.1Ω	27KΩ	
V 21	21MP4	0Ω	40KΩ	PIN 6 400KΩ	PIN 10 #2.2KΩ	PIN 11 ■100KΩ	PIN 12 .1Ω			

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V19
■ MEASURED FROM PIN 8 OF V20
MEASURED FROM PIN 3 OF V17

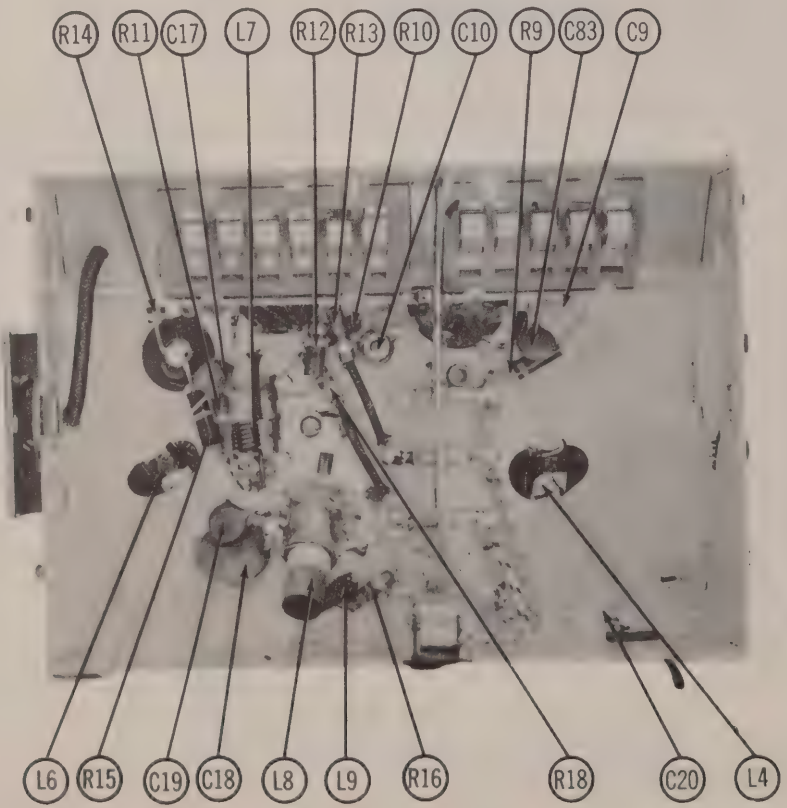


BOTTOM VIEW

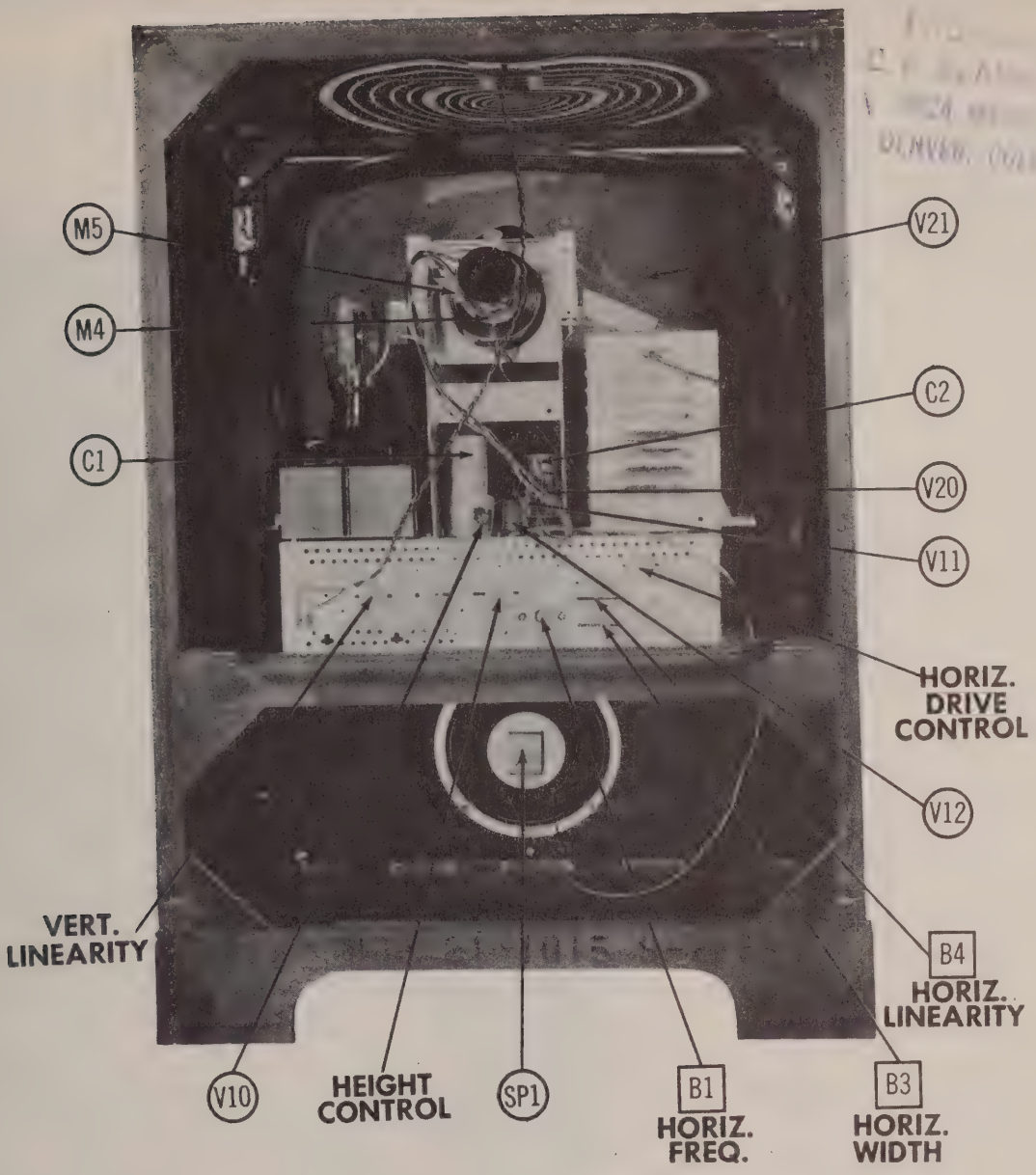
TUBE PLACEMENT CHART



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

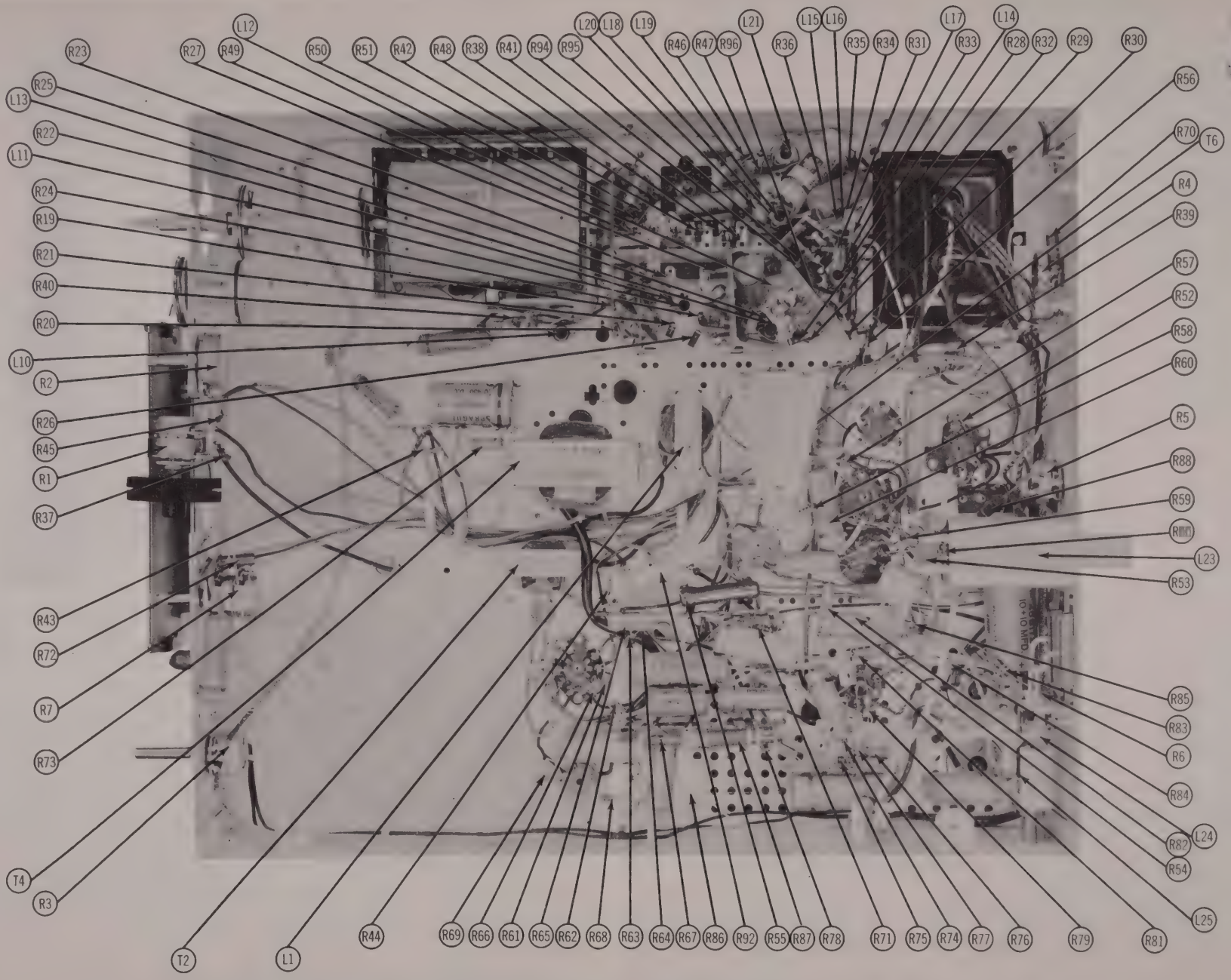


CABINET-REAR VIEW

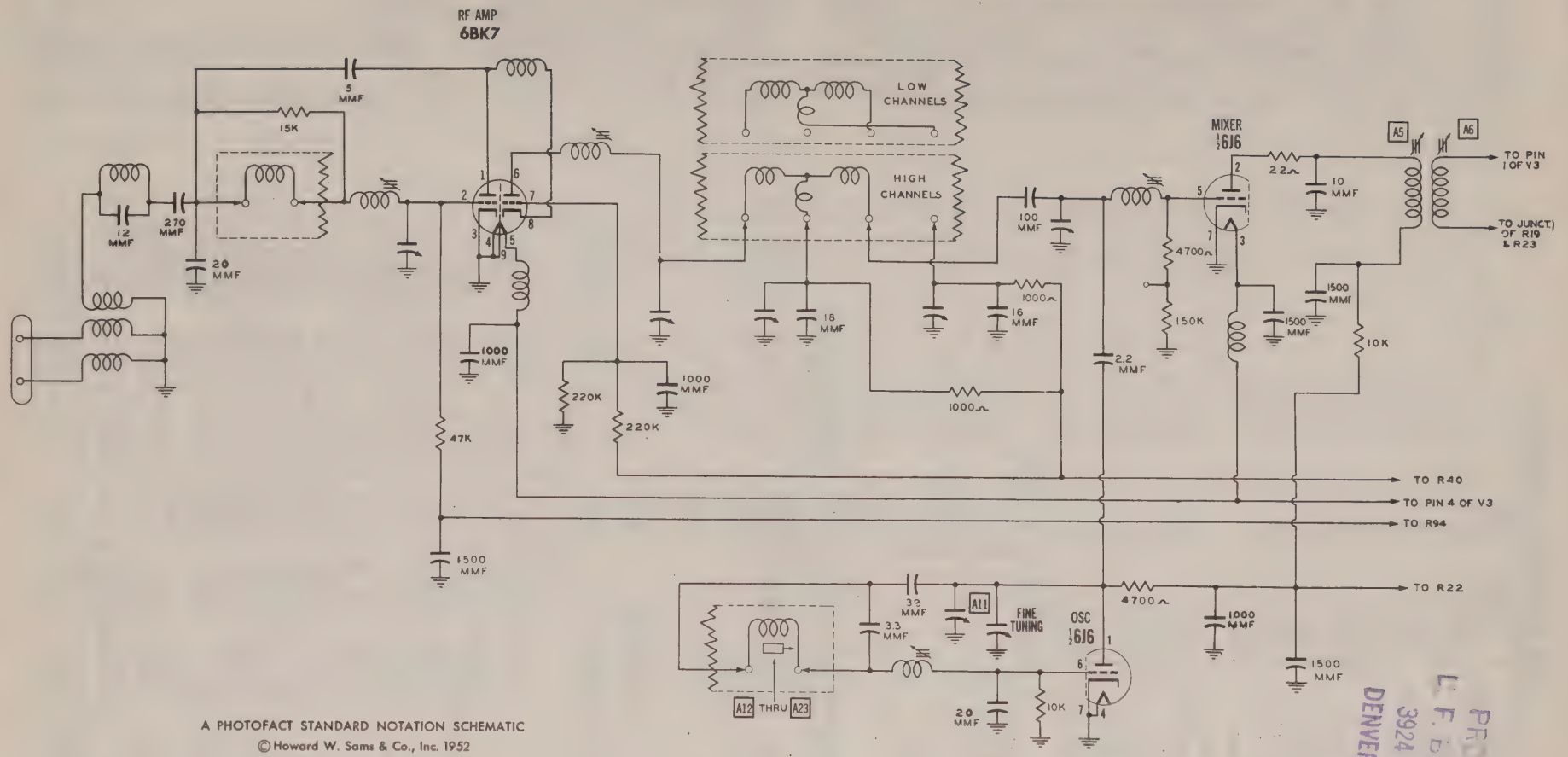
DISASSEMBLY INSTRUCTIONS

1. Remove 3 push on type control knobs from front panel.
2. Remove 3 wood screws to open hinged rear cover.
3. Disconnect speaker and built-in antenna.
4. Remove 5 chassis bolts. Remove chassis.
5. Remove 4 speaker nuts. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE CHASSIS AS OUTLINED ABOVE.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



PRO
L. F.
3924
DENVER, COLORADO

ALTERNATE TUNER SCHEMATIC

HALLICRAFTERS MODELS 1005, 1006, 1015, 1016, 1017, 1018, 1019, (Ch. A1100D)

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	90X6BQ7	6BQ7	9AJ	
B	RF Amplifier	90X6BK7	6BK7	9AJ	
V2	Converter	90X6J6	6J6	7BF	
V3	1st. Video IF Amp.	90X6CB6	6CB6	7CM	
V4	2nd. Video IF Amp.	90X6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	90X6CB6	6CB6	7CM	
V6	Video Detector - AGC Rectifier	90X6AL5	6AL5	6BT	
V7	Video Output	90X6CB6	6CB6	7CM	
V8	Sound IF Amp.	90X6AU6	6AU6	7BK	
V9	Ratio Detector	90X6AL5	6AL5	6BT	
V10A	AF Amplifier	90X6AV6	6AV6	7BT	
B	AF Amplifier	90X6SQ7	6SQ7	8Q	
V11	Audio Output	90X6AQ5	6AQ5	7BZ	
V12A	Sync Amplifier - Sync Separator	90X12AU7	12AU7	9A	
B	Sync Amplifier - Sync Separator	90X6SN7GT	6SN7GT	8BD	
V13A	Sync Clipper - Vert. Oscillator	90X12AU7	12AU7	9A	
B	Sync Clipper - Vert. Oscillator	90X6SN7GT	6SN7GT	8BD	
V14	Vert. Output	90X6S4	6S4	9AC	
V15	Horiz. AFC-Horiz. Oscillator	90X6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	90X6AU5GT	6AU5GT	6CK	
V17	Damper	90X6W4GT	6W4GT	4CG	
V18	HV Rectifier	90X1B3GT	1B3GT	3C	
V19	LV Rectifier	90X5U4G	5U4G	5T	
V20	LV Rectifier	90X6AX5GT	6AX5GT	6S	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V21A	21MP4			12C	① Circuit changes necessary
B	20HP4	20HP4		12C	
		20HP4A ①		12C	
C	17HP4	17HP4		12C	
		17HP4		12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	60	450	45B173	AFH3-207		UPT62245		FP1	TVL-2770	
B	40	450							TVA-1310	
C	75	50								
C2A	40	250	45B174	AFH4-130		UP4445C		FP413X	TVL-4739	
B	40	250								
C	40	450								
D	20	25								
C3	10	450	45-200	PRS450/10		BR1045A		TC72	TVA-1705	
C4A	10	450	45A172	PRS450/10-10		BR1045A		TCD72	TVA-2722	
B	10	450								
C5	5	50	45B175	PRS150/4		BR550		TC30	TVA-1303	
C6	100	10	45B170	PRS12/100		BR1021A		TC2501	TVA-1130	
C7	5	50	45B175	PRS150/4		BR550		TC30	TVA-1303	
C8	2.2				TCZ-2.2		NP0K-2R2		5TCCB-V22	
C9	3-9				829-10					
C10	.5-3				829-3			CT585A		
C11	800			BPD-0008	DD-801	TM5T8	801-001	DC-521	5HK-D1	
C12	1.5			SII.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C13	47			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C14	.5-3				829-3			CT585A		
C15	10			SII0NP0	TCZ-10		NP0K-100	ZT-551	5TCC-Q1	
C16	5			SI5	TCZ-4.7		GP1K-050	ZT-555	5TCUB-V5	
C17	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C18	6.8			SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C19	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C20	10000			BPD-01	D6-103	TM5S1	GP2-333-103	DC-511	5HK-S1	
C21	.1	200	46A1104J	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C22	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C23	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C24	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C25	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C26	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	68				TCZ-68		NP0-333-680		5TCC-Q68	
C28	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	10		47B20100K5	SII0	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C32	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	Note 1
C33	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	10		47B20100K5	SII0	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C35	5		47B20050K5	SI5	TCZ-4.7	5W5V5	GP1K-050	ZT-555	5TCUB-V5	
C36	.5	200	46A177	P288-5		PJ2P5		PT405	2TM-P5	
C37	.5	200	46A177	P288-5		PJ2P5		PT405	2TM-P5	
C38	47			SI47N750	TCN-47		N750K-470	NT-5447	5TCU-Q47	
C39	.1	200	46A1104J	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C40	2.2		46A160-4		TCZ-2.2		NP0K-2R2		5TCCB-V22	
C41	47			SI47N750	TCN-47		N750K-470	NT-5447	5TCU-Q47	
C42A	4000		47A218	BPD-2X004	D6-402	TM5DD4	822-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C43	330				D6-331		GP2K-331	UC-5333	5GA-T33	
C44	1000	500	47B20A102M5	1468-001	D6-102	1W5D1	GP2L-102	MC255	1FM-21	
C45	.01	600	46AY103J	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46A	.01									
B	250		†49A017		†PC-80				†102C1	
C										
C47	.01	600	46AY103J	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	
C48	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C49	220	500	47X20B221K	1468-00025	D6-251	5W5T25	GP2K-251	MC240	1FM-325	
C50	.05	600	46AY503J	P688-05	DF-503	PTE68S		PT615	6TM-S5	
C51	.05	600	46AY503J	P688-05	DF-503	PTE68S		PT615	6TM-S5	
C52	68		47B20680K5		D6-680		GP1K-680		5GA-Q68	
C53	.5	200	46A1704J	P288-5		PJ2P5		PT405	2TM-P5	
C54A	.002			P688-002		PTE6D2	GP2-333-202	PT622		
B	.005		‡49A015	P688-005	‡PC-100	PTE6D5	GP2-333-502	PT625	‡101C1	
C	.005			P688-005		PTE6D5	GP2-333-502	PT625		
C55	6800	500	47X35B682K					MCB469	MS-27	
C56	5000		47A168	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C57	1000	500	47B20A102M5	1468-001	D6-102	1W5D1	GP2L-102	MC255	1FM-21	
C58	.01	600	46AY103F	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	
C59	.035	600	46AY353F							
C60	.1	600	46AX104J	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C61	.01	600	46AY103J	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	
C62	.01	600	46AY103J	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	
C63	120	500	47X20B121K	1469-00015		5R5T15		MCB236		
C64	330	500	47X20B331K	1469-00035						
C65	82	500	47X20B820K							
C66	.05	600	46AY503J	P688-05	DF-503	PTE68S		PT615	6TM-S5	
C67	.5	200	46AT504J	P288-5		PJ2P5		PT405	2TM-P5	
C68	.02	600	46AY203J	P688-02	DF-203	PTE6S2		PT612	6TM-S2	
C69	.05	600	46AY503J	P688-05	DF-503	PTE68S		PT615	6TM-S5	
C70	330	500	47X20B331K	1469-00035						
C71	.01	600	46BR103E4	P688-01	D6-103	PTE68I	GP2-333-103	PT611	6TM-S1	
C72	68	500	47B20680K5	1469-00007		5R5T7			MS-47	Note 3
C73	82	500	47X20B820K							
C74	820	500	47X25B821K							
C75	6800	500	47X35B682K					MCB469	MS-27	Note 2
C76	.047	600	46BR473L6	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C77	.05	600	46AY503J	P688-05		PTE68S		PT615	6TM-S5	
C78	.05	600	46AY503J	P688-05		PTE68S		PT615	6TM-S5	
C79	1000	1000	47A275			1WP10D2		MCK220		
C80	.1	600	46AX104J	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C81	500	20000	47A223	HV20C	TV3-502	MM-C20T5			20DK-T5	
C82A	10000		47-274	BPD-01	DD-3-103	TM5DS1	821-01	DC-511	5HK-2S1	
B	10000			BPD-01			821-01	DC-511		

Note 1. Some models use 1000MMF in this application.
Note 2. Some models use 4700MMF in this application.
Note 3. Not used in all models.
† Items C46A, C46B, C46C, R53A, R53B are combined in one unit.
When replacing items separately C46B and C46C should total 250MMF.
‡ Items C54A, C54B, C54C, R65A, R65B, R65C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2500Ω		25B971	QJ-333			UF252L	Contrast - Panel
B	50KΩ						UR54L	Brightness - Rear
R2A	1.5Meg		25A970	Q11-138	AG-83-S	B-75	U-155	Focus
B	Shaft		Not Req.	Not Req.	KS8-3	Not Req.	Not Req.	Attach to R2A
R3A	1Meg		25B969	Q13-137	AG-63-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R3A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R3A
R4A	5000Ω		25B712	Q11-114	AG-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R4A
R5A	2.5Meg		25B711	Q11-239	AG-84-S	AB-83	SU-565	Height
B	Shaft		Not Req.	Not Req.	FK3-1/4	AK-1	Not Req.	Attach to R5A
R6A	50KΩ		25A858	Q11-123	AG-44-S	AB-31	SU-35	Horiz. Drive
B	Shaft		Not Req.	Not Req.	FK5-1/4	AK-1	Not Req.	Attach to R6A
R7A	50KΩ		25B890	QJ-61*	RTV-239		UF54L	Horiz. Hold - Panel
B	1Meg						UR16L	Vert. Hold - Rear

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B11-123 & P1-106 (Panel)
B11-137 & R1-115 (Rear)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R8	15KΩ 20%			BTS-15K	Ant. Coil Shunt
R9	47KΩ 20%				RF Amp. Grid
R10	100KΩ			BTS-100K	RF Amp. Grid
R11	160KΩ				RF Amp. Grid
R12	100KΩ			BTS-100K	Voltage Divider
R13	1500Ω			BTS-1500	RF Amp. Decoupling
R14	10KΩ			BTS-10K	Mixer Grid
R15	220KΩ				Mixer Grid
R16	3300Ω			BTS-3300	Mixer Plate Decoupling
R17	10KΩ			BTS-10K	Osc. Grid
R18	10KΩ			BTS-10K	Osc. Plate
R19	4700Ω		23X20X472K	BTS-4700	1st. Video IF Coil Shunt
R20	47Ω		23X20X470K		1st. Video IF Amp. Cathode
R21	12KΩ		23X20X123K		2nd. Video IF Coil Shunt
R22	100Ω		23X20X101K	BTS-100	Decoupling
R23	270Ω		23X20X271K	BTS-270	AGC Network - See Note 1
R24	47Ω		23X20X470K		2nd. Video IF Amp. Cathode
R25	10KΩ		23X20X103K		3rd. Video IF Coil Shunt
R26	100Ω		23X20X101K	BTS-100	Decoupling
R27	270Ω		23X20X271K	BTS-270	AGC Network - See Note 1
R28	100Ω		23X20X101K	BTS-100	Decoupling
R29	150Ω		23X20X151K	BTS-150	3rd. Video IF Amp. Cathode
R30	100Ω		23X20X101K	BTS-100	Decoupling
R31	1200Ω		23X20X122K	BTS-1200	AGC Network
R32	47KΩ 20%		23X30X473K	BTA-47K	Voltage Divider
R33	1Meg		23X20X105M	BTS-1Meg	AGC Network
R34	3300Ω		23X20X332K	BTS-3300	Video Det. Diode Load
R35	220KΩ 20%		23X20X224M	BTS-220K	Video Output Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: Hallicrafters PART No.	IRC PART No.	IDENTIFICATION CODES
R36	150Ω		23X20X151K	BTS-150	Video Output Cathode
R37	1000Ω		23X20X102K	BTS-1000	Contrast Control Shunt
R38	5600Ω		23X40X562K	BTS-5600	Video Output Plate
R39	1500Ω		23X40X152K	BTS-1500	Decoupling
R40	100Ω		23X20X101K	BTS-100	Decoupling - See Note 1
R41	10KΩ		23X20X103K	BTS-10K	Isolation
R42	100KΩ 20%		23X20X104M	BTS-100K	Picture Tube Cathode
R43	10KΩ		23X20X103K	BTS-10K	Picture Tube Grid
R44	6800Ω		23X20X682K	BTS-6800	Voltage Divider
R45	47KΩ		23X20X473K	BTS-47K	Voltage Divider
R46	150Ω		23X20X151K	BTS-150	Sound IF Amp. Cathode
R47	22KΩ		23X20X223K	BTS-22K	Sound IF Amp. Decoupling
R48	270Ω		23X20X271K	BTS-270	Balancing
R49	33KΩ		23X20X333K	BTS-33K	De-emphasis
R50	10KΩ 5%		23X20X103J	BTS-10K 5%	Ratio Det. Diode Load
R51	10KΩ 5%		23X20X103J	BTS-10K	Ratio Det. Diode Load
R52	10Meg 20%		23X20X106M	BTS-10Meg	AF Amp. Grid
R53A	500KΩ		†49A017		AF Amp. Plate
B	500KΩ				Output Grid
R54	270Ω	1	23X30X271K	BTA-270	Output Cathode
R55	1600Ω	10	24BG162E	1 3/4A-1500	Decoupling - Wire Wound
R56	220KΩ		23X20X224M	BTS-220K	Isolation
R57	2.2Meg 20%		23X20X225M	BTS-2.2Meg	Sync Amp. Grid
R58	47KΩ		23X20X473K	BTS-47K	Sync Amp. Plate
R59	270KΩ		23X20X274M	BTS-270K	Sync Sep. Cathode
R60	820KΩ 20%		23X20X824M	BTS-820K	Sync Sep. Plate
R61	47KΩ		23X20X473K	BTS-47K	Sync Clipper Grid
R62	4700Ω		23X20X472K	BTS-4700	Sync Clipper Cathode
R63	2200Ω		23X20X222K	BTS-2200	Sync Clipper Plate
R64	2200Ω		23X20X222K	BTS-2200	Sync Clipper Plate
R65 A	22KΩ			BTS-22K	Integrator Network
B	8200Ω		‡49A015	BTS-8200	Integrator Network
C	8200Ω			BTS-8200	Integrator Network
R66	1.2Meg 20%	2		BTS-1.2Meg	Vert. Osc. Grid - See Note 3
R67	1Meg 20%	1	23X30BF105M	BTA-1Meg	Vert. Osc. Plate
R68	12KΩ		23X20X123K	BTS-12K	Vert. Peaking
R69	2.2Meg 20%		23X20X225M	BTS-2.2Meg	Vert. Output Grid
R70	1000Ω		23X30X102K	BTA-1000	Vert. Output Cathode
R71	4700Ω		23X20X472K	BTS-4700	Vert. Blanking Network
R72	120KΩ		23X30BF124K	BTS-120K	Voltage Divider
R73	68KΩ		23X30X683K	BTA-68K	Voltage Divider
R74	330KΩ		23X20X334K	BTS-330K	Horiz. AFC Grid
R75	820KΩ		23X20X824K	BTS-820K	Horiz. AFC Grid
R76	82KΩ		23X30X823K	BTA-82K	Horiz. AFC Cathode
R77	330KΩ		23X30BF334J	BTA-330K	Horiz. AFC Cathode
R78	3900Ω		23X20X392K	BTS-3900	Horiz. AFC Filter
R79	150KΩ		23X20X154K	BTS-150K	Horiz. Osc. Grid
R80	8200Ω		23X30X823K	BTS-8200	Horiz. Osc. Transformer Shunt
R81	47KΩ		23X30BF473K	BTS-47K	Horiz. Osc. Plate
R82	330KΩ		23X30X334K	BTA-330K	Horiz. Feedback
R83	10KΩ		23X20X103K	BTS-10K	Voltage Divider
R84	47Ω		23X20X470K		Parasitic Suppressor
R85	470KΩ		23X20X474M	BTS-470K	Horiz. Output Grid
R86	220Ω	3	24A925		Horiz. Output Cathode - Wire Wound
R87	15KΩ	3	23X40X153K	BTS-15K	Horiz. Output Screen
R88	2200Ω	1	23X30X222K	BTA-2200	Decoupling
R89	3.3Ω		23X20X033K		HV Rectifier Filament
R90	1Meg		23X30X105M		HV Rectifier Filter
R91	150KΩ 20%		23X20X154M	BTS-150K	Fuse Shunt
R92	750Ω	10	24A920	1 3/4A-750	Filter - Wire Wound
R93	270KΩ		23X20X274K	BTS-270K	Line Isolation
R94	150Ω		23X20X151K	BTS-150	AGC Network - See Note 4
R95	820KΩ		23X20X824K	BTS-820K	AGC Network
R96	820KΩ		23X20X824K	BTS-820K	AGC Network
R97	20Ω	7.5	24A947		Current limiting - See note 5

Note 1. Some models use a 150Ω resistor in this application.
Note 2. Some models use a 120Ω resistor in this application.
Note 3. Some models use a 820KΩ resistor in this application.
Note 4. Some models use a 680KΩ resistor in this application.
Note 5. Not used in all models.
† Items R53A, R53B, C46A, C46B, C46C are combined in one unit.
‡ Items R65A, R65B, R65C, C54A, C54B, C54C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC	620VCT	5VAC	6.3VAC	53C204		P-3073		
	① 1.75A	.190ADC	② 3A	③ 8.7A					
		Tapped ④		SEC. 4					
		400VCT,		6.3VAC					
		.080ADC		④ 1.2A					

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	160Ω	850Ω	55B115	A-8111	A-3000	TBO-1 ①	A-97X ②	Vert. Osc. Trans.
T3	510Ω Tap ③ 52, 90 120, 370 380, 570	0Ω	55C180					Horiz. Output Trans.
T4	1600Ω		55B151	A-8141	A-3039		A-104X	Vert. Output Trans.
	Tap ③ 5Ω		55B189 ③					
T5A	20Ω		53C237	Dy-9	MDF-70	TY-3	Y-17	Horiz. Deflection Coils
B	47Ω		53-237 ④ 53C197 ④					Vert. Deflection Coils

① Mount on top of chassis.
② Drill one new mtg. hole
③ Alternate Vert. Output Trans.
④ Alternate Deflection Yoke.

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PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T6	4.3KΩ	3.3Ω	280Ω	.48Ω	55B150	A-3877 ①	A-2930 ①	RO-8 ①	S-3X ①	① Bend mtg. tabs down, file out slots and mount on original bracket.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Hallicrafters PART No.	JENSEN PART No.	QUAM PART No.	
SP1	8"	PM	3.3Ω	85C104	ST-115 Mod. P8-U	8A31	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	Hallicrafters PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.180A	93Ω	1.2 Hy.	53B116	C-2327	C-2994 ①	TR-1515	C-13X ①

① Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	Hallicrafters PART No.	MERIT PART No.	
L2	Ant. Coils	0Ω				
L3	RF Choke	0Ω				
L4	Fil. Choke	0Ω				
L5	RF, Mixer Grid and Osc. Coils	0Ω				
L6	Fil. Choke	0Ω				
L7	Plate Choke	0Ω				
L8	Conv. Plate	.6Ω				
L9	RF Choke	.1Ω				
L10	1st. Video IF	.1Ω				
L11	2nd. Video IF	.2Ω	.2Ω	50A475		
L12	Fil. Choke	0Ω		53A200		
L13	3rd. Video IF	.2Ω	.2Ω	51B1332 or 50A476		Includes Trap
L14	4th. Video IF	.2Ω	.2Ω	50A477		
L15	RF Choke	1.9Ω		53B008		
L16	Peaking Coil	8Ω		51A1256	*TV-181	Wound on 6.8K resistor
L17	Peaking Coil	11Ω		51A1260	†TV-185	Wound on 2.2K resistor
L18	Peaking Coil	12Ω		51A1257	♦TV-185	Wound on 15K resistor
L19	4.5MC Trap	1Ω		51B1333 or 50B474	TV-151	
L20	Peaking Coil	16.5Ω		51A1259	†TV-188	Wound on 2.2K resistor
L21	Sound IF	1Ω		51B1333 or 50B474	TV-151	
L22	Ratio Det.	3.8Ω	.6ΩCT	50C473	■TV-110	Tertiary Winding .3Ω
L23	Horiz. Osc.	78Ω	44Ω	51B1242	TV-163	Tap @ 21Ω
L24	Width Coil	13Ω		51-1489		
L25	Horiz. Lin.	7.6Ω		51A1470		

* Parallel with 6.8K resistor
† Parallel with 2.2K resistor
♦Parallel with 15K resistor
■ Drill one new mtg. hole

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Hallicrafters PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3 AG Slo-Blo Pigtail	1/4 A. 125 V.	39A344		315.250		MDV 1/4	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					Hallicrafters PART No.		
M2	Bayonet	6-8	.15	Blue	39A004		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M3A	RF Tuner	11377	
B	RF Tuner	1D1284	
M4	Centering Magnet	21B138	
M5	Ion Trap	21A101	

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to fully clockwise,

Adjust the horizontal frequency slug (B1) until the blanking bar appears in the picture as a single vertical bar.

Turn the hold control fully counter-clockwise and momentarily interrupt the signal by switching to another channel and back again. If the picture is not in sync, four or less slopingbars should be present. If more than four bars are present, slightly readjust B1 until four bars or less are obtained.

If stable horizontal synchronization cannot be obtained as outlined above perform the horizontal waveform adjustment.

Connect the vertical input lead of as oscilloscope through 47KΩ to terminal C of L23.

Adjust the waveform slug (B2) until the broad and narrow peaks of the waveform on the scope are of equal height as shown in fig. 6. If necessary during adjustment of B2, adjust B1 to keep the picture synchronized.

Repeat the horizontal hold check and readjust B1 if necessary for proper synchronization.

Turn the horizontal drive control to its maximum clockwise position without the presence of a vertical white line in the picture. If no vertical line appears leave the control in its maximum clockwise position.

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

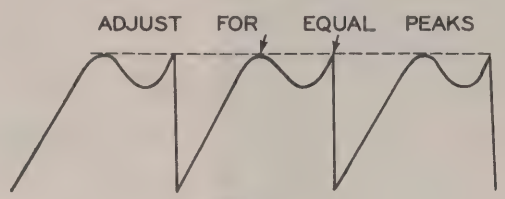
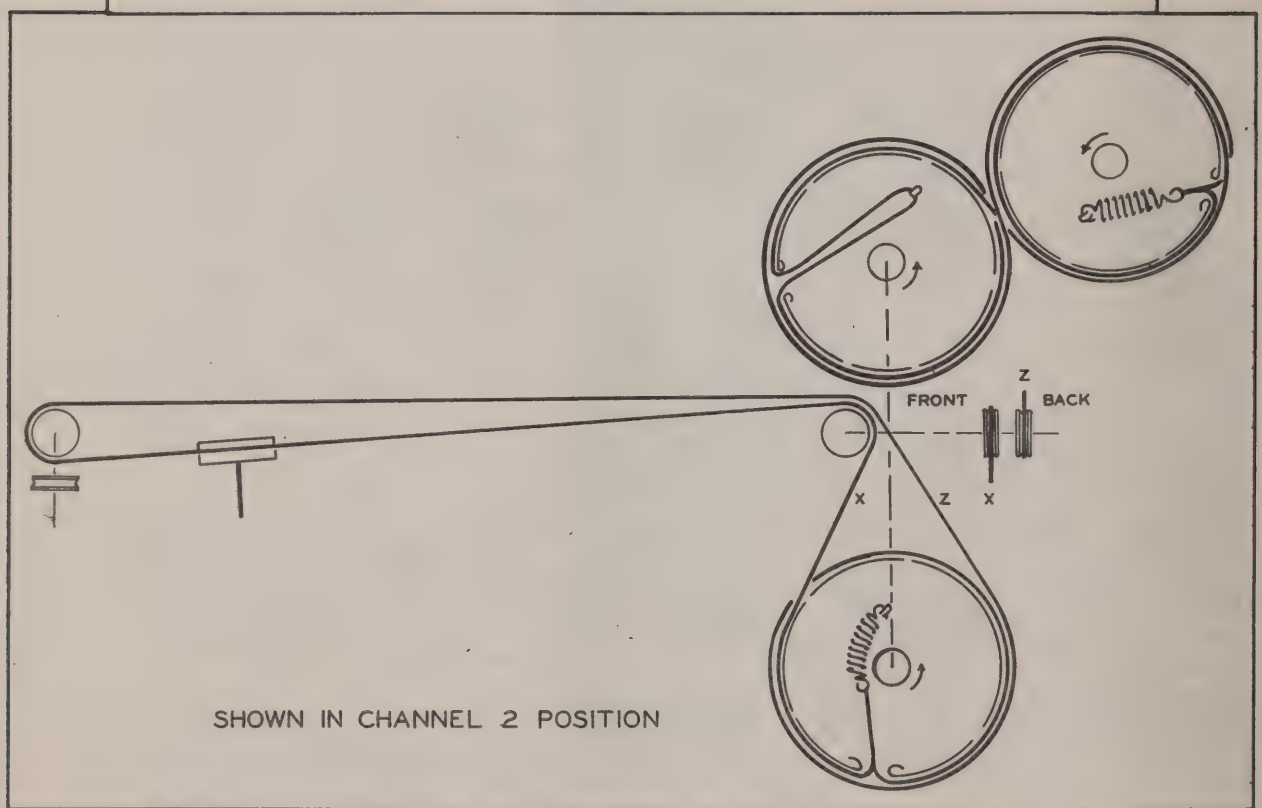


FIG. 6



DRIVE CORD STRINGING

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MASCO
RK-5SLR

MASCO
RK-5SLR

TRADE NAME	Masco Model RK-5SLR
MANUFACTURER	Mark Simpson Mfg. Co., Inc, 32-28 49th. St., Long Island City 3, N.Y.
TYPE SET	AC Operated AM Superheterodyne Receiver with Disc Recorder Unit.
TUBES (Seven)	Types 6SA7 Conv,, 6SF7 IF Amp.-Det., 6SL7GT Pre-Amp., 6SL7GT AF Amp.-Level Ind. Rect., 6V6GT Audio Output, 6E5 or 6U5 Level Ind., 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .44 amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1840 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn tuning gang fully closed and set pointer parallel with base of dial at low frequency end. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 8 (grid) of 6SA7 (V1) Low side to chassis.	456 KC (400% Mod.)	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output.
2.	Direct	High side to antenna connection on antenna coil (disconnect antenna hank). Low side to chassis.	1400 KC	1400 KC	"	A5, A6	Adjust for order given for maximum output.

FOR SERVICE INFORMATION ON RECORDER UNIT - SEE GENERAL INDUSTRIES MODEL R90L- PHOTOFACT SET #35 - FOLDER #28 OR RECORD CHANGER MANUAL CM-1.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MASCO PART No.	STANDARD REPLACEMENT		
V1	Converter	6SA7	6SA7	8R	
V2	IF Amplifier-Detector	6SF7	6SF7	7AZ	
V3	Pre-Amplifier	6SL7GT	6SL7GT	8BD	
V4	AF Amplifier-Level Ind. Rect.	6SL7GT	6SL7GT	8BD	
V5	Audio Output	6V6GT	6V6GT	7AC	
V6A	Level Indicator	6E5	6E5	6R	
B	Level Indicator	6U5	6U5	6R	
V7	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MASCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	16	450		PRS450/16		BR1645A		TC74	TVA-1708	
C2	16	450		PRS450/16		BR1645A		TC74	TVA-1708	
C3A	8	450		PRS450/8-8		EDL8D45		TCD71	TVA-2720	
B	8	450								
C4	10	50		PRS50/10		BR105		TC32	TVA-1304	
C5	8	450		PRS450/8		BR845A		TC71	TVA-1704	
C6	100			SI100N750	TCN-100		N750L-101	NT531	5TCU-T1	
C7	.1	200		P288-1	DF-104	PJ2P1		PT401	2TM-P1	Note 2
C8	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C9	100			SI100N750	TCN-100		N750L-101	NT531	5TCU-T1	
C10	100			SI100N750	TCN-100		N750L-101	NT531	5TCU-T1	
C11	.05	400		P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C12	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C13	100			SI100	D6-101	TM5T1	GP1K-101	UC531	5GA-T1	Note 1
C14	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C15	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	Note 3
C16	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C17	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C18	.0047	600		P688-0047	D6-472	PTE6D47	GP2-333-472	PT625	6TM-D47	
C19	.1	600		P688-1	DF-104	PTE6P1		PT601	6TM-P1	

Note 1. Not used in all models.
Note 2. Some models use .05MFD in this application.
Note 3. Some models use .005MFD in this application.

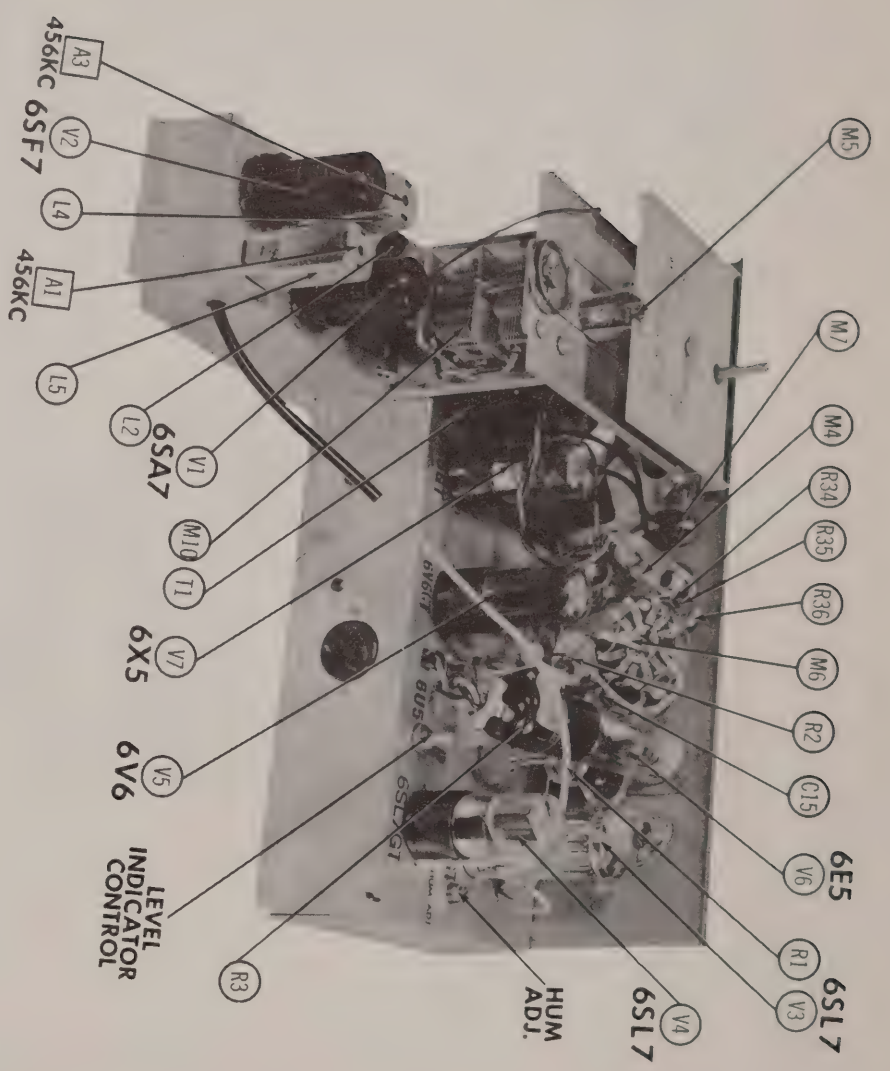
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	33-011-188	Q13-133	AG-60-Z	B-60	U-48	Volume
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R1A
R2A	500KΩ	½	33-011-188	Q13-133	AG-60-Z	B-60	U-48	Tone
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R2A
R3A	500KΩ	½	33-011-188	Q13-133	AG-60-Z	B-60	U-48	Level Indicator
B	Shaft		Not Req.	Not Req.	RS-2	Not Req.	Not Req.	Attach to R3A
R4A	50Ω	1			A43-50		C50P	Hum Balance
B	Shaft				FKS-1/4		Not Req.	Attach to R4A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
R5	27KΩ	½		BTS-27K	Osc. Grid
R6	4700Ω	½		BTS-4700	Screen Dropping
R7	2.7Meg	½		BTS-2.7Meg	AVC Network
R8	47KΩ	½		BTS-47K	Det. RF Filter
R9	470KΩ	½		BTS-470K	Det. Diode Load
R10	5000Ω	5		1 3/4A-5000	Voltage Divider - Wire Wound
R11	270KΩ	½		BTS-270K	Tone Compensation
R12	2.7Meg	½		BTS-2.7Meg	Pre-Amp. Grid

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MASCO PART No.	IRC PART No.	
R13	27KΩ	1/2		BTS-27K	Pre-Amp. Grid
R14	1000Ω	1/2		BTS-1000	Pre-Amp. Cathode
R15	270KΩ	1/2		BTS-270K	Pre-Amp. Plate
R16	27KΩ	1/2		BTS-27K	Decoupling - See Note 1
R17	1Meg	1/2		BTS-1Meg	Level Indicator Network - See Note 2
R18	470KΩ	1/2		BTS-470K	Level Indicator Network - See Note 3
R19	2200Ω	1/2		BTS-2200	lst. AF Amp. Cathode
R20	47KΩ	1/2		BTS-47K	lst. AF Amp. Plate
R21	4700Ω	1/2		BTS-4700	2nd. AF Amp. Cathode
R22	47KΩ	1/2		BTS-47K	2nd. AF Amp. Plate
R23	1Meg	1/2		BTS-1Meg	Feedback Network
R24	470KΩ	1/2		BTS-470K	Output Grid
R25	270Ω	2			Output Cathode
R26	27KΩ	1/2		BTS-27K	Decoupling
R27	4700Ω	1/2		BTS-4700	Tone Compensation
R28	270KΩ	1/2		BTS-270K	Series Phono - See Note 2
R29	470KΩ	1/2		BTS-470K	Tone Compensation
R30	1Meg	1/2			Level Indicator Plate
R31	15Meg	1/2		BTS-15Meg	Level Indicator Rectifier Load
R32	50KΩ	1/2			Tone Compensation
R33	500KΩ	1/2			Crystal Shunt
R34	150Ω	1/2		BTS-150	Voice Coil Shunt - See Note 4
R35	150Ω	1/2		BTS-150	Voice Coil Shunt - See Note 3
R36	4	3			Voice Coil Shunt - Wire Wound

Note 1. Some models use a 47KΩ resistor in this application.
Note 2. Some models use a 1.5Meg resistor in this application.
Note 3. Not used in all models.
Note 4. Some models use a 75Ω resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA				
	PRI.	SEC. 1	SEC. 2	SEC. 3	MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC @ .44A	480VCT .055ADC	6.3VAC @ 2.1A		P-5A	PM-8402	P-3047	PH-50	R-6B

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T2	7.3KΩ	3.5Ω	430Ω	.4Ω	T-5A	A-3824	A-2902 ①	RO-9	S-9X	① Drill one new mtg hole.

SPEAKER

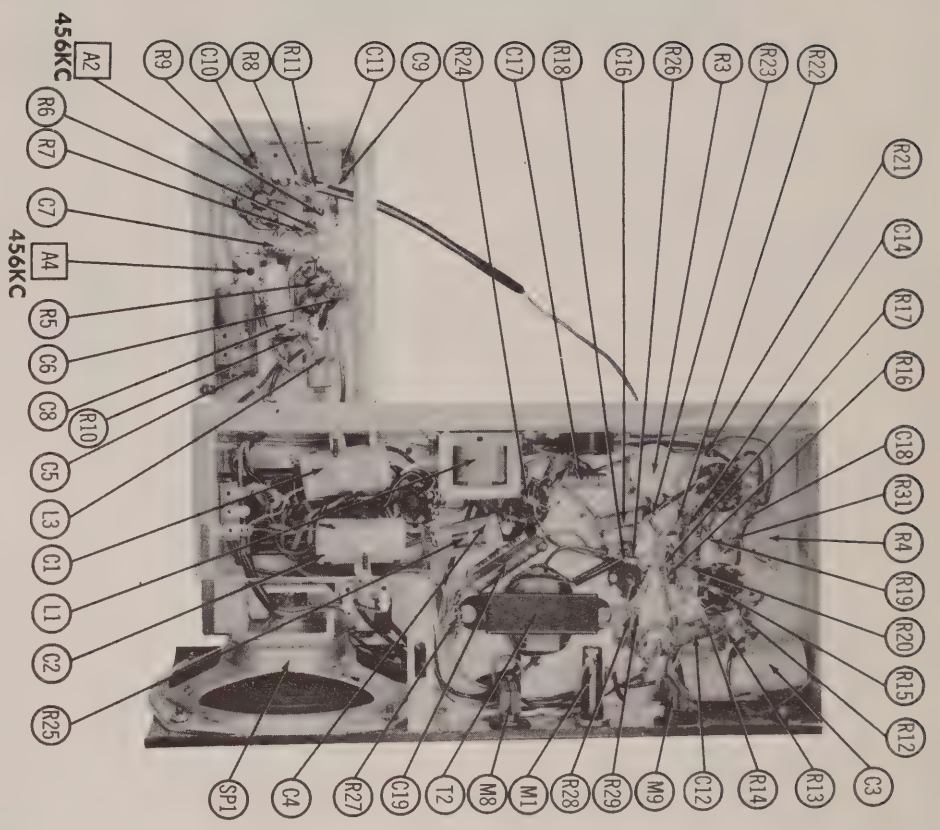
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MASCO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6"	PM	3.5Ω		ST-108 Mod. P6-X	6A1	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	MASCO PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.045A	270Ω	3.5Hy.	C-1	C-1706		R650 ①	C-4X

① Drill one new mtg. hole

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MASCO PART No.	MERIT PART No.	
L2	Ant. Coil	37Ω	4.4Ω	S-405	BC-380	
L3	Osc. Coil	5.8Ω		S-225	*BC-381	Tap ④ .7Ω
L4	Input IF	20Ω	20Ω	1655-1	BC-352	
L5	Output IF	15.5Ω	15.5Ω	1655-6	BC-353	

* New mounting required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MASCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A. 250V.			312003	341001	AGC 3	HKP

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	MASCO PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2		LT4-D-1 *X-26	D-33 D			96	0-1 or S-1 & 0-3 or S-3	* Cutter Cartridge

ASTATIC, AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGES NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	MASCO PART No.	WALCO PART No.	JENSEN PART No.	
M3		W-6A or W-6S & W-6MGA or W-6MGS	A-83 & A-83LP	

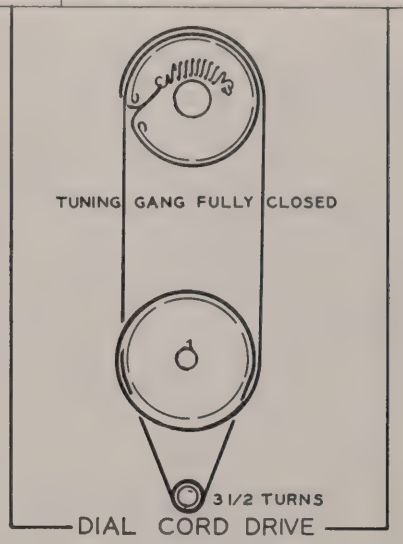
PARTS LIST AND DESCRIPTIONS (Continued)

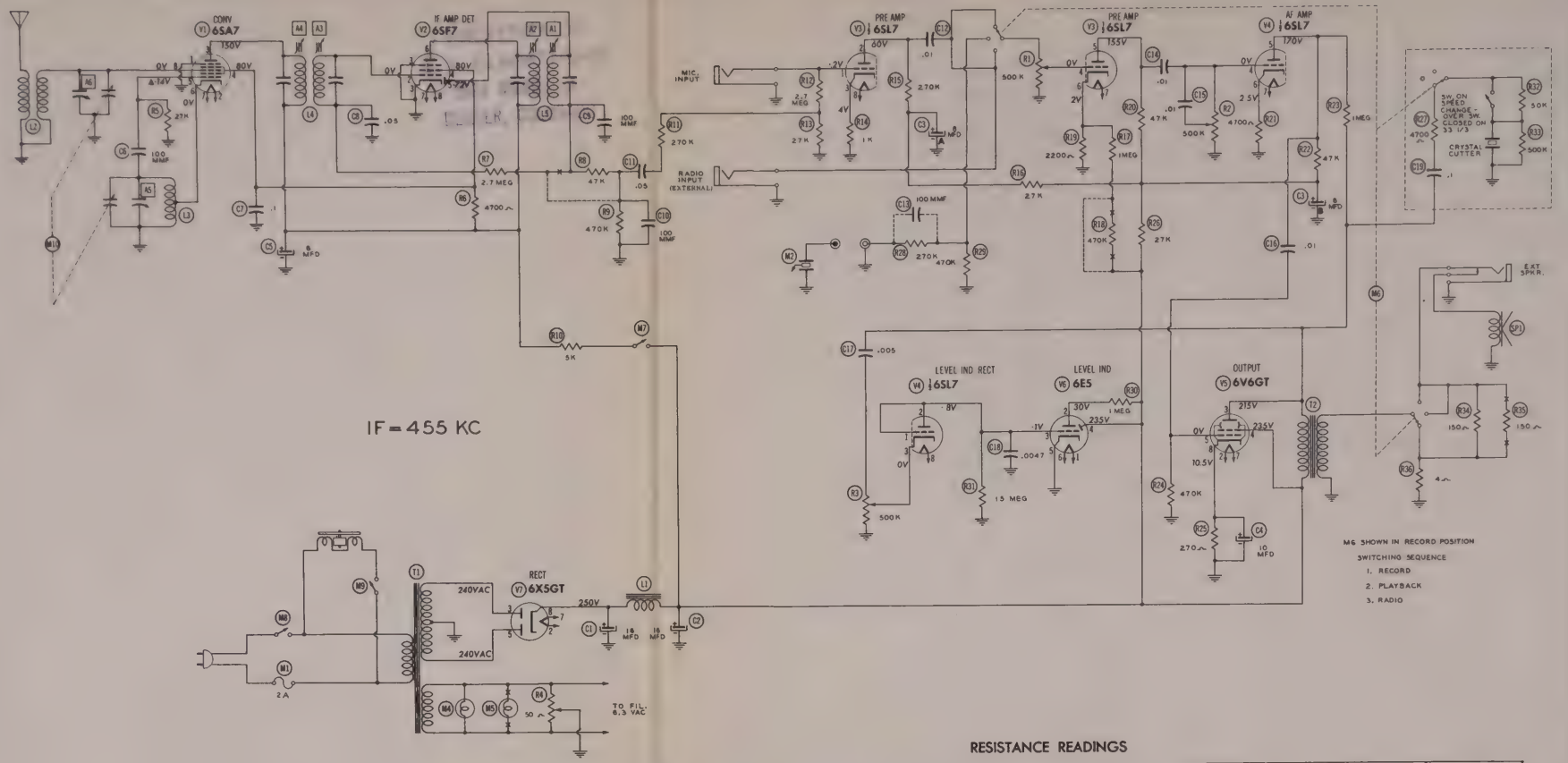
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MASCO PART No.		
M4	Bayonet	6-8	.15	Brown			Type #47
M5	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	MASCO PART No.	NOTES
M6	Switch		Function Selector
M7	Switch		Radio B+ on/off
M8	Switch		Amplifier on/off
M9	Switch		Motor on/off
M10	2 Gang Var. Cap.		(26-397MMF, 21-192MMF)





1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SA7	0Ω	12Ω	†5.3KΩ	†9KΩ	27KΩ	.7Ω	12Ω	4.4Ω
V 2	6SF7	0Ω	3.2Meg	0Ω	†9KΩ	515KΩ	†5.3KΩ	12Ω	12Ω
V 3	6SL7GT	2.7Meg	†325KΩ	1KΩ	0Ω	†75KΩ	2.2KΩ	12Ω	12Ω
V 4	6SL7GT	15Meg	15Meg	18KΩ	500KΩ	†75KΩ	4.7KΩ	12Ω	12Ω
V 5	6V6GT	0Ω	12Ω	†700Ω	†270Ω	470KΩ	†700Ω	12Ω	270Ω
V 6	6E5	12Ω	†1Meg	15Meg	†270Ω	0Ω	12Ω		
V 7	6X5GT	INF	12Ω	181Ω	†270Ω	183Ω	INF	12Ω	150KΩ

ALL MEASUREMENTS TAKEN WITH FUNCTION SWITCH IN P.A. POSITION AND TUNER B+ SWITCH IN "ON" POSITION.
† MEASURED FROM PIN 8 OF V7.
▲ TAKEN WITH VACUUM TUBE VOLTMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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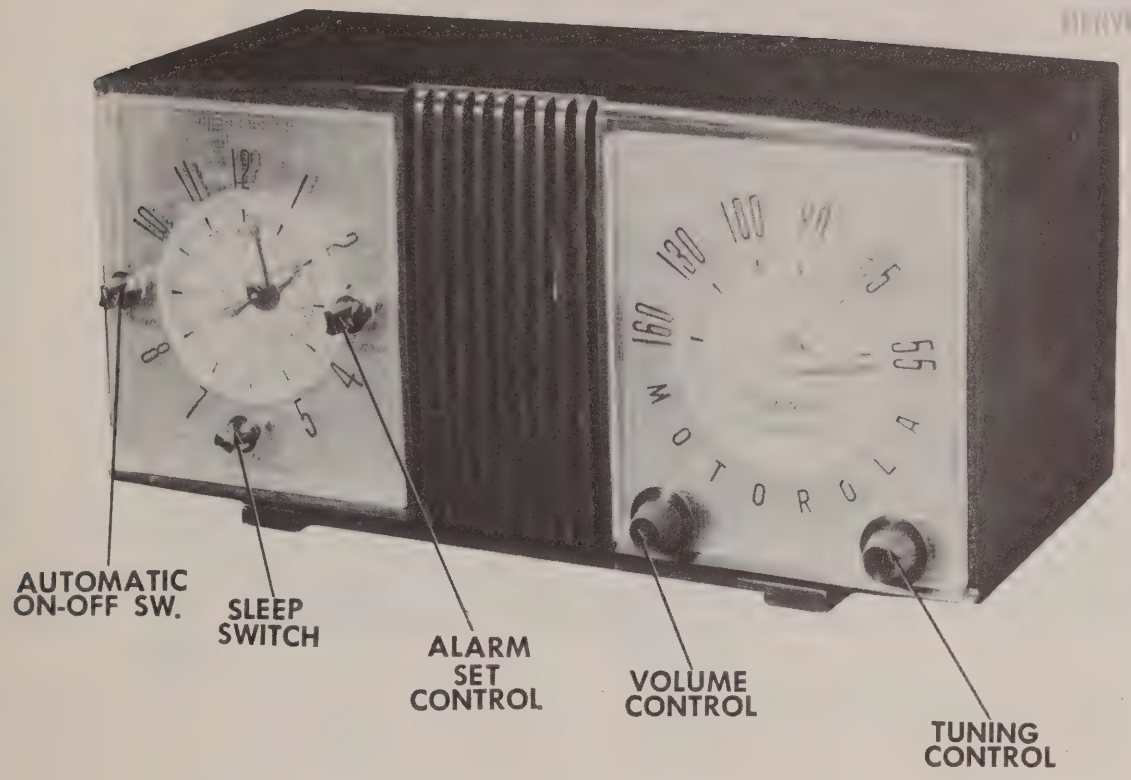
MOTOROLA 52C6,
52C7, 52C8 (Ch. HS-310)



MOTOROLA 52C6,
52C7, 52C8 (Ch. HS-310)

MOTOROLA MODEL 52C6

TRADE NAME	Motorola Models 52C6, 52C7, 52C8 (Ch. HS-310)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC Operated AM Superheterodyne Receiver with Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BD6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	.27 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535 - 1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Loop should be maintained in same relative position to chassis as when receiver is in cabinet.. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455 KC (400∿ Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

With receiver aligned and installed in cabinet, turn tuning gang fully closed and set pointer to last reference mark at low frequency end of dial.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BD6	12BD6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	23B600855	PRS150/50-30		BRD5315A		2N520	TVA-2450	+ Red
B	30	150								+ Green
C2	.05	200	8R9821	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3A	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
B	2000			BPD-002	DD-202	TM5D2	801-002	DC-522		
C	220		21B482847	SI220	D6-221	5W5T25	GP2K-221	UC-5322	34C3	
D	5000			BPD-005	DD-502	TM5D5	811-005	DC-525		
C4	.02	400	8R9802	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C5	.047	400	8R490232	489ZGXY-05		PJ4S5		PT4147	4TM-S47	
C6	.15		8A690487							Note 1

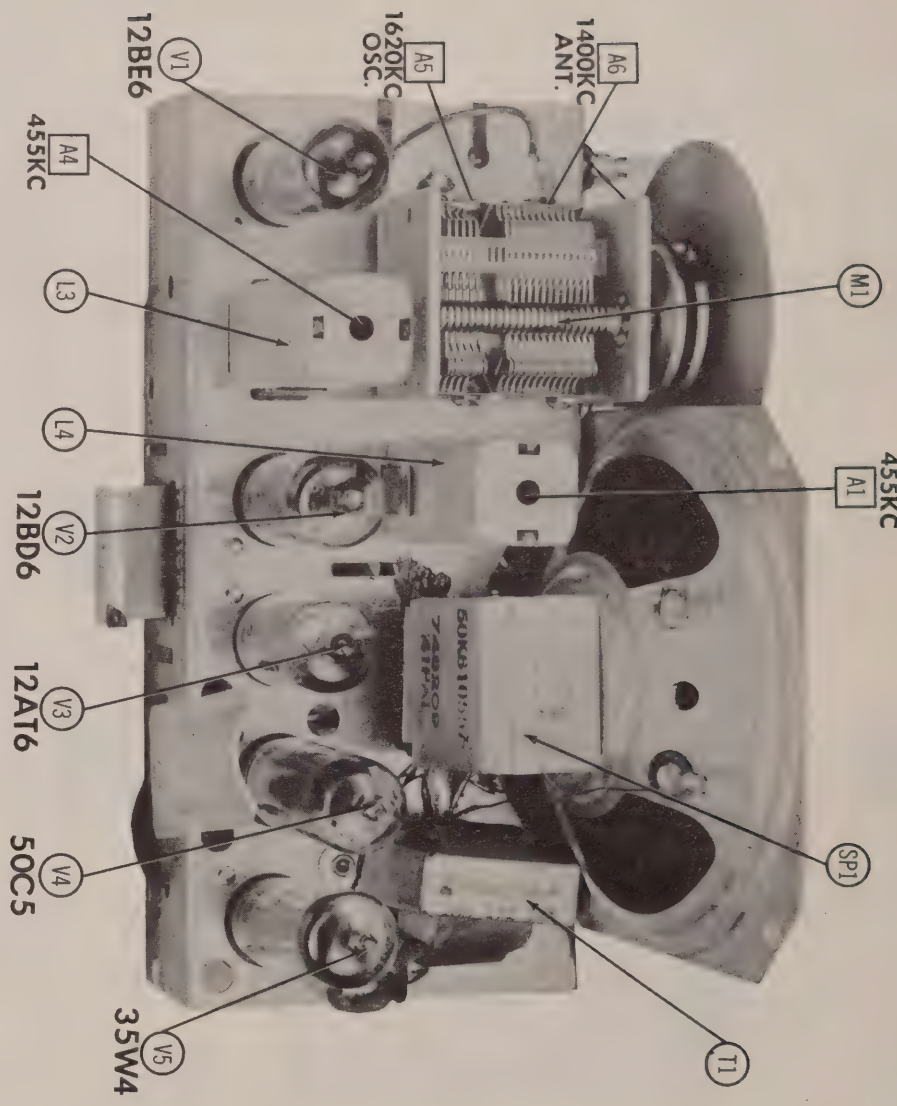
CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	18A600018	Q13-137	AG-63-Z	BSK-70	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	22KΩ	½	6R6028	BTS-22K	Osc. Grid
R3	100Ω	½	6R6018	BTS-100	IF Amp. Cathode
R4	2.2Meg	½	6R3927	BTS-2.2Meg	AVC Network
R5	10Meg	½	6R2109	BTS-10Meg	AF Amp. Grid
R6	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R7	470KΩ	½	6R6032	BTS-470K	Output Grid
R8	150Ω	½	6R3992	BTS-150	Output Cathode
R9	27Ω	½	6R5683		Surge Limiter
R10	1000Ω	1	6R3953	BTA-1000	Filter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	2.5KΩ	3.3Ω	160Ω	.45Ω	25K680345-F	A-3332 ①	A-3025	RO-2 ①	S-1X ①	① Drill one new mtg. hole.

SPEAKER

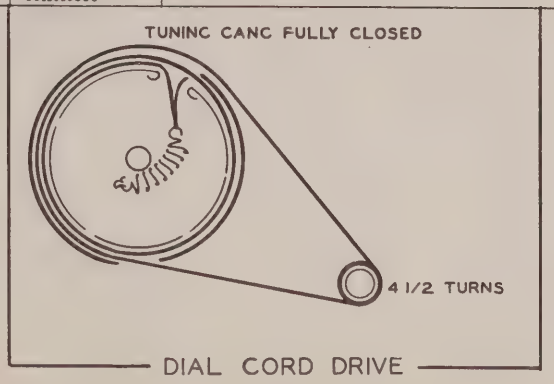
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	50K610557	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

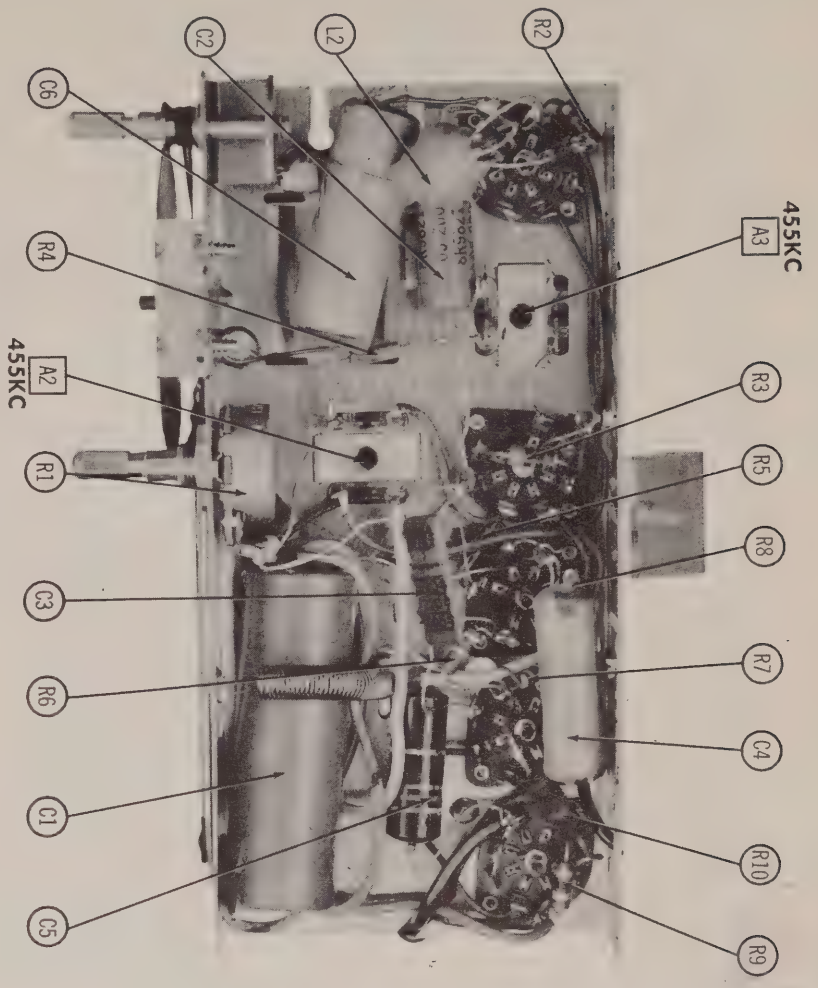
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L1	Loop Ant.	3.2Ω		1X610854		
L2	Osc. Coil	1Ω	11.5Ω	24B680364		
L3	Input IF	17Ω	17Ω	24C485553	BC-352	
L4	Output IF	17Ω	17Ω	24C485553	BC-353	

MISCELLANEOUS

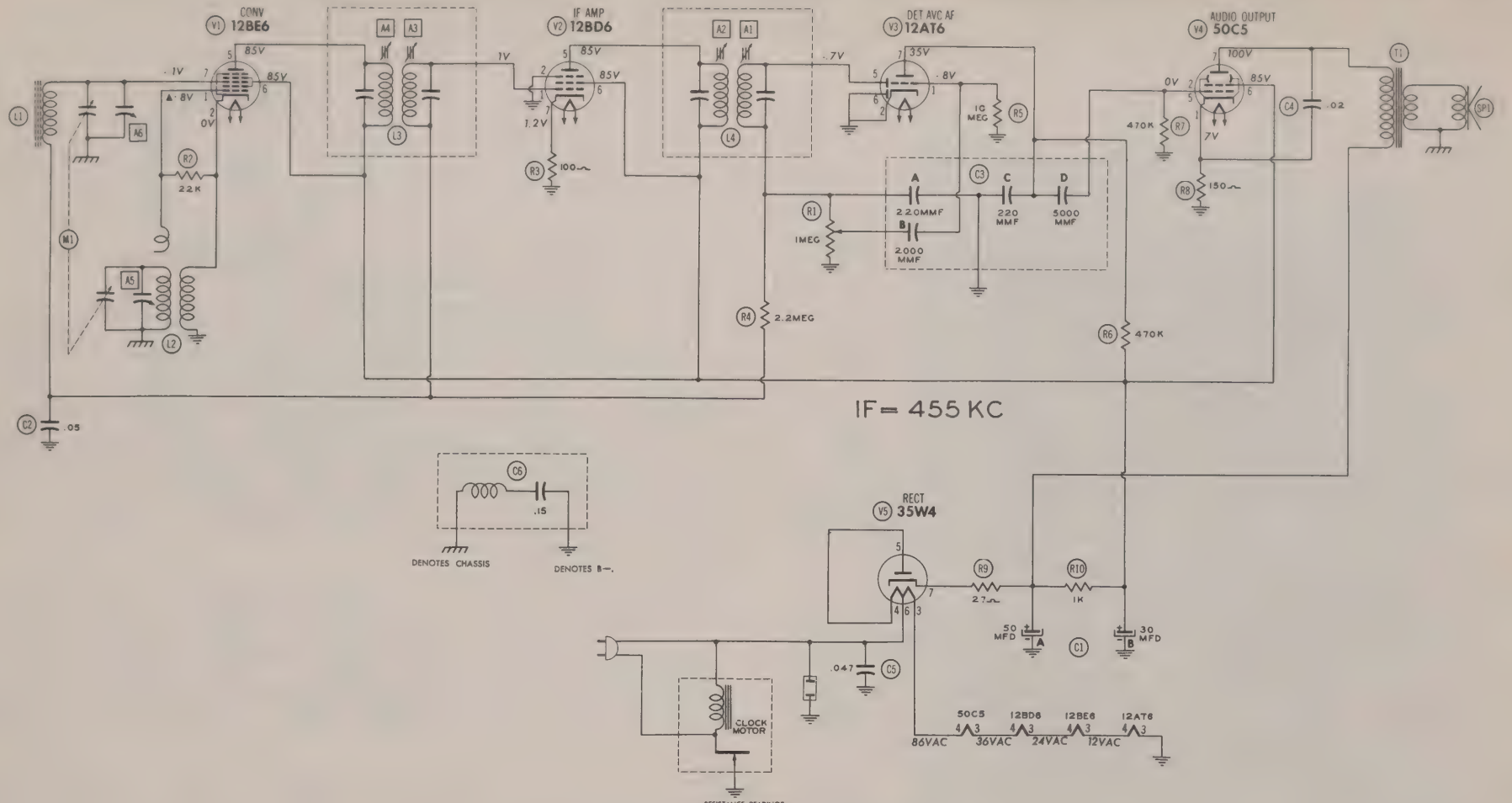
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	2 Gang Var. Cap.	19B610820	(25-354MMF, 14-157MMF)
	Cabinet	1X610839	Walnut - Model 52C6
	Cabinet	1X610855	Ivory - Model 52C7
	Cabinet	1X610856	Green - Model 52C8
	Knob	36B610817	Clock Control
	Knob	36B610815	Radio Control
	Dial Scale	34C610821	Clock
	Dial Scale	34C610791	Radio
	Dial Pointer	52A610809	Radio
	Clock	59K610835	



CHASSIS—BOTTOM VIEW



MOTOROLA MODELS 52C6 (Ch. HS-310)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1Ω	12Ω	24Ω	†1KΩ	†1KΩ	3.2Meg
V 2	12BD6	3.2Meg	0Ω	34Ω	36Ω	†1KΩ	†1KΩ	100Ω
V 3	12AT6	10Meg	0Ω	0Ω	12Ω	1Meg	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	86Ω	470KΩ	†1KΩ	†187Ω
V 5	35W4	†27Ω	†27Ω	86Ω	121Ω	121Ω	103Ω	80KΩ

† MEASURED FROM PIN 7 OF V5
▲ TAKEN WITH VACUUM TUBE VOLTMETER

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

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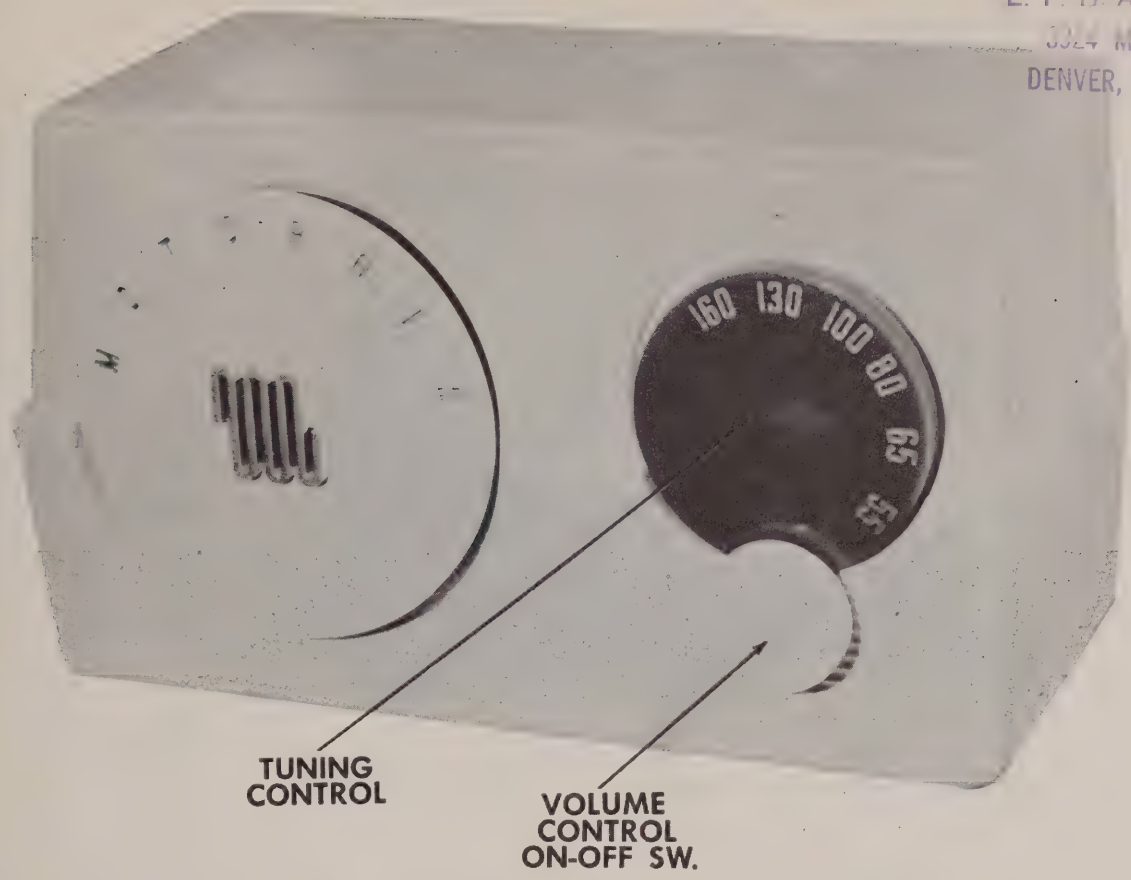
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

MOTOROLA 52R11U, 52R12U, 52R13U, 52R14U, 52R15U, 52R16U (Ch. HS-315)

PROPERTY OF
L. F. BLANKENSHIP
3324 MEADE ST.
DENVER, COLORADO

MOTOROLA 52R11U, 52R12U, 52R13U, 52R14U, 52R15U, 52R16U (Ch. HS-315)



MOTOROLA 52R11U, 52R12U, 52R13U, 52R14U, 52R15U, 52R16U (Ch. HS-315)

MOTOROLA MODEL 52R12U

TRADE NAME	Motorola Models 52R11U, 52R12U, 52R13U, 52R14U, 52R15U, 52R16U (Ch. HS-315).
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (FIVE)	Types 12BE6 Conv., 12BD6 IF Amp., 12AT6 Det.-AVC-AF Amp., 50C5 Audio Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC/DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400Ω Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum putput. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wore and radiate signal into loop of receiver.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1952 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BD6	12BD6	7BK	
V3	Det.-AVC-AF Amp.	12AT6	12AT6	7BT	
V4	Audio Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	23B600855	PRS150/50-30		EDL5315		TCD497	TVA-2450	(+ Red) (+ Green)
B	30	150								
C2	.05	200	8R9821	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3A	220			SI220	D6-221	5W5T25	GP2K-221	UC-5322		
B	2000			BPD-002	DD-202	TM5D2	811-002	DC-522	34C3	
C	220		21E482847	SI220	D6-221	5W5T25	GP2K-221	UC-5322		
D	5000			BPD-005	DD-502	TM5D5	811-005	DC-525		
C4	10000		21K482726	BPD-01	DD-103	TM5S1	821-01	DC-511	5HK-S1	
C5	.047	400	8R490232	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C6	.15		8A690487							Note 1

Note 1 455KC Resonant Filter

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	18A610640	Q13-137	AG-63-Z	BSK-70S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWB	Not Req.	US-26	Attach to R1A

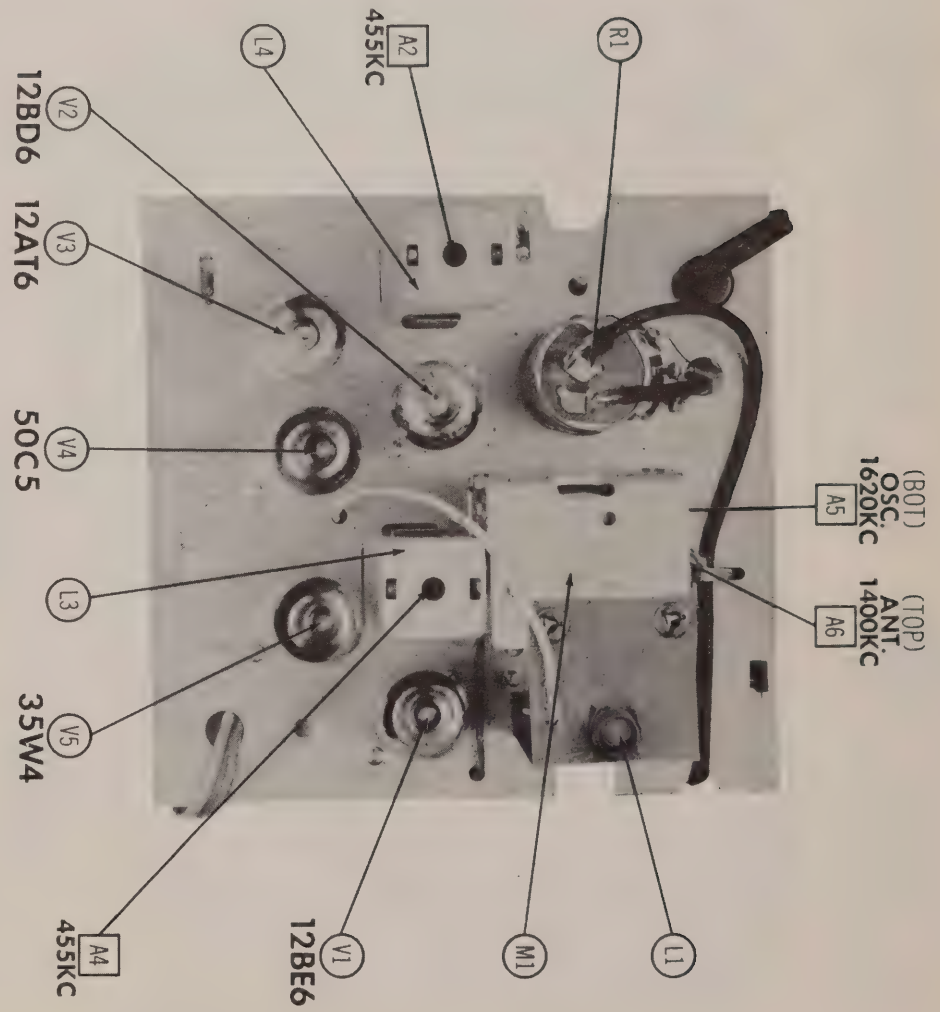
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	IDENTIFICATION CODES
R2	22KΩ	½	6R6028	BTS-22K	Osc. Grid
R3	100Ω	½	6R6018	BTS-100	IF Amp. Cathode
R4	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	AVC Network
R5	10 Meg.	½	6R2109	BTS-10 Meg.	AF Amp. Grid
R6	470KΩ	½	6R6032	BTS-470K	AF Amp. Plate
R7	470KΩ	½	6R6032	BTS-470K	Output Grid
R8	150Ω	½	6R3992	BTS-150	Output Cathode
R9	27Ω	½	6R5683		Surge Limiter
R10	1000Ω	1	6R3953	BTA-1000	Filter

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T1	2.2KΩ	3.2Ω	237Ω	.43Ω	25K610631	A-3332①	A-3025	RO-2	S-2X	①Drill one new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.2Ω	50C611188	ST-113 Mod. P-4X	4A07	

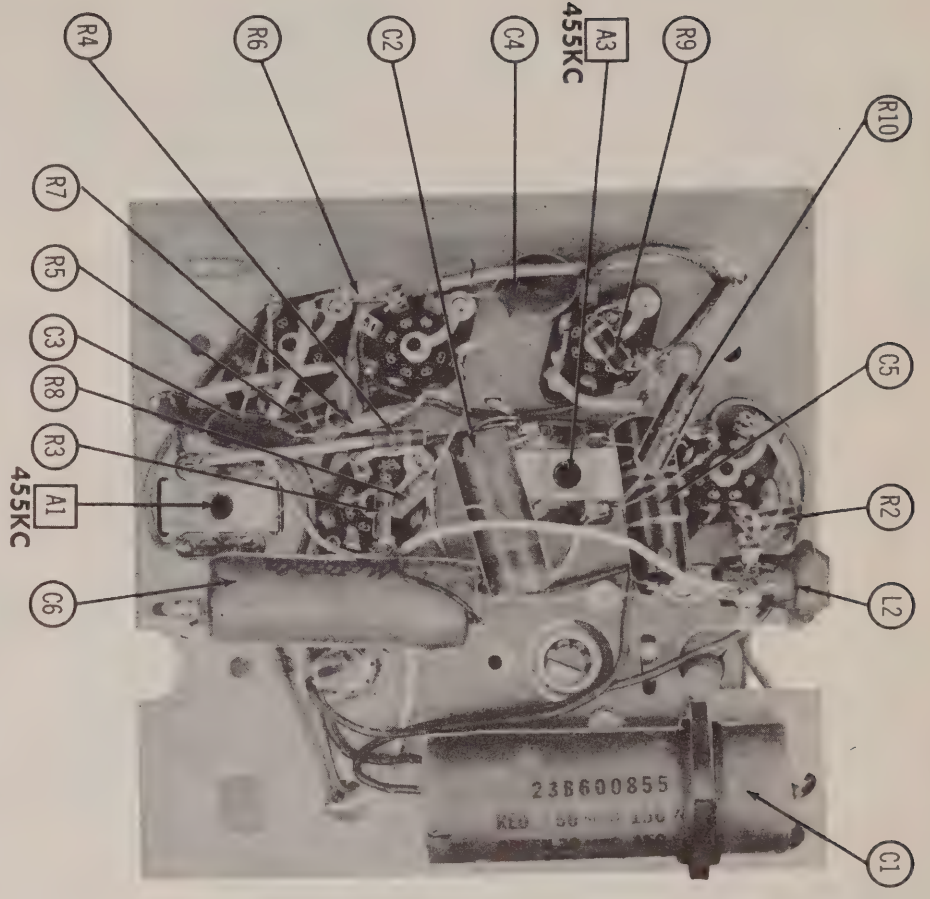
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	MOTOROLA PART No.	MERIT PART No.	
L1	Loop Ant.	3.4Ω		24A610646		
L2	Osc. Coil	1.1Ω	1Ω	24B610838		
L3	Input IF	17Ω	17Ω	24C485553	BC-352	
L4	Output IF	17Ω	17Ω	24C485553	BC-353	

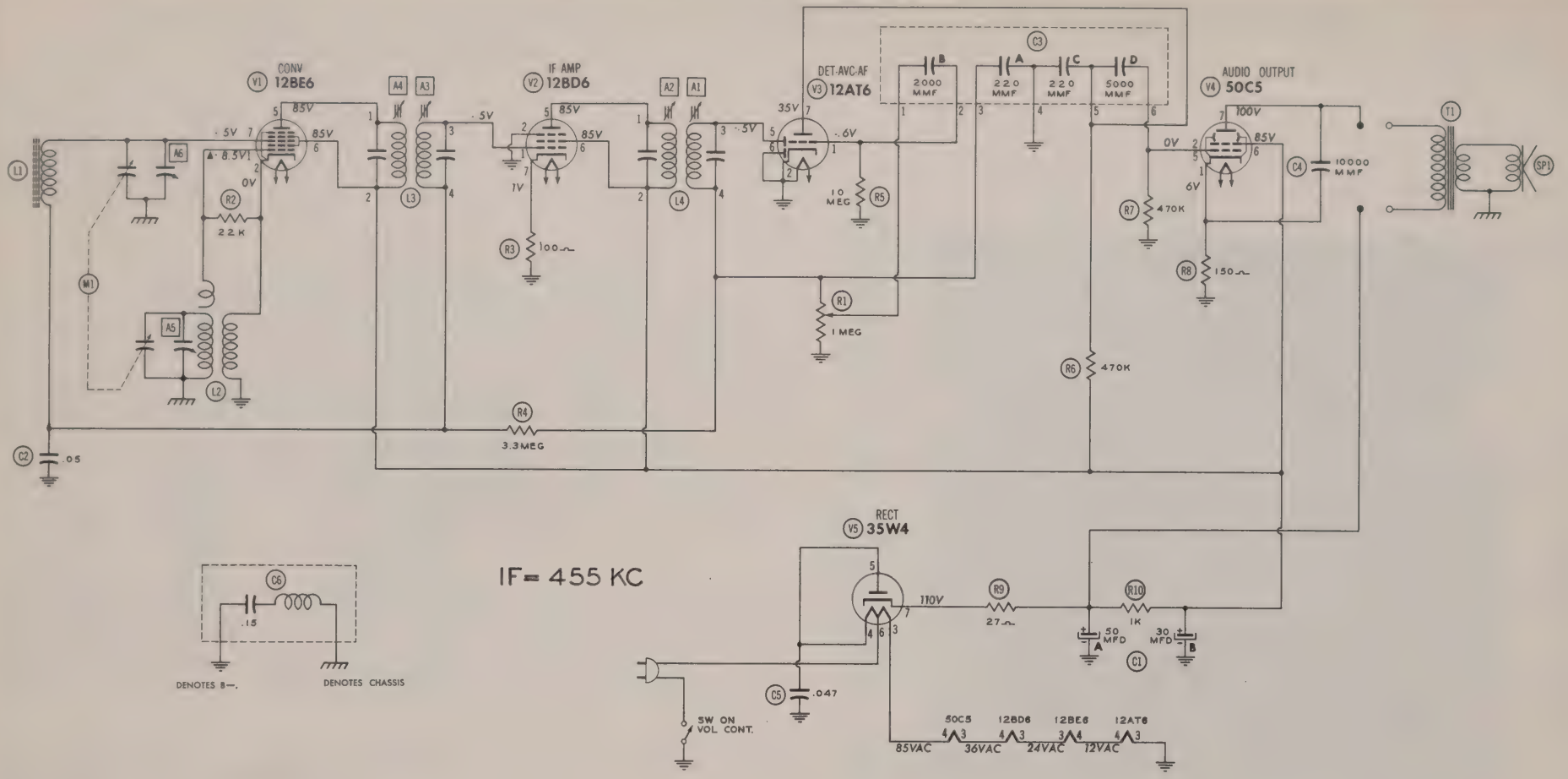
MISCELLANEOUS

ITEM No.	PART NAME	PART No.	NOTES
M1	2-Gang Var. Cap.	19B610626	(21-252 MMF, 15-162 MMF)
	Cabinet	16C611255	Model 52R11U (Walnut)
	Cabinet	16K611256	Model 52R12U (Ivory)
	Cabinet	16K611258	Model 52R13U (Maroon)
	Cabinet	16K611259	Model 52R14U (Grey)
	Cabinet	16K611260	Model 52R15U (Green)
	Cabinet	16K611261	Model 52R16U (Red)
	Knob	36B610628	Tuning-Models 52R11U & 52R12U (Tan)
	Knob	36K611306	Tuning-Models 52R13U & 52R16U (Black)
	Knob	36K611307	Tuning-Models 52R14U & 52R15U (Green)
	Knob	36A610641	Volume-Model 52R11U (Brown)
	Knob	36K610642	Volume-Model 52R12U (Ivory)
	Knob	36K611302	Volume-Model 52R13U (Maroon)
	Knob	36K611303	Volume-Model 52R14U (Grey)
	Knob	36K611304	Volume-Model 52R15U (Green)
	Knob	36K611305	Volume-Model 52R16U (Red)

CHASSIS—BOTTOM VIEW



MOTOROLA MODELS 52R11U (Ch. HS-315)



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1.1Ω	24Ω	12Ω	†1KΩ	†1KΩ	4.3Meg
V 2	12BD6	4.3MEG	0Ω	24Ω	36Ω	†1KΩ	†1KΩ	100Ω
V 3	12AT6	10MEG	0Ω	0Ω	12Ω	1Meg	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	38Ω	86Ω	470KΩ	†1KΩ	†264Ω
V 5	35W4	†27Ω	INF	86Ω	121Ω	121Ω	103Ω	40KΩ

† MEASURED FROM PIN 7 OF V5.
▲ TAKEN WITH VACUUM TUBE VOLTMETER

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A PHOTOFACT STANDARD NOTATION SCHEMATIC

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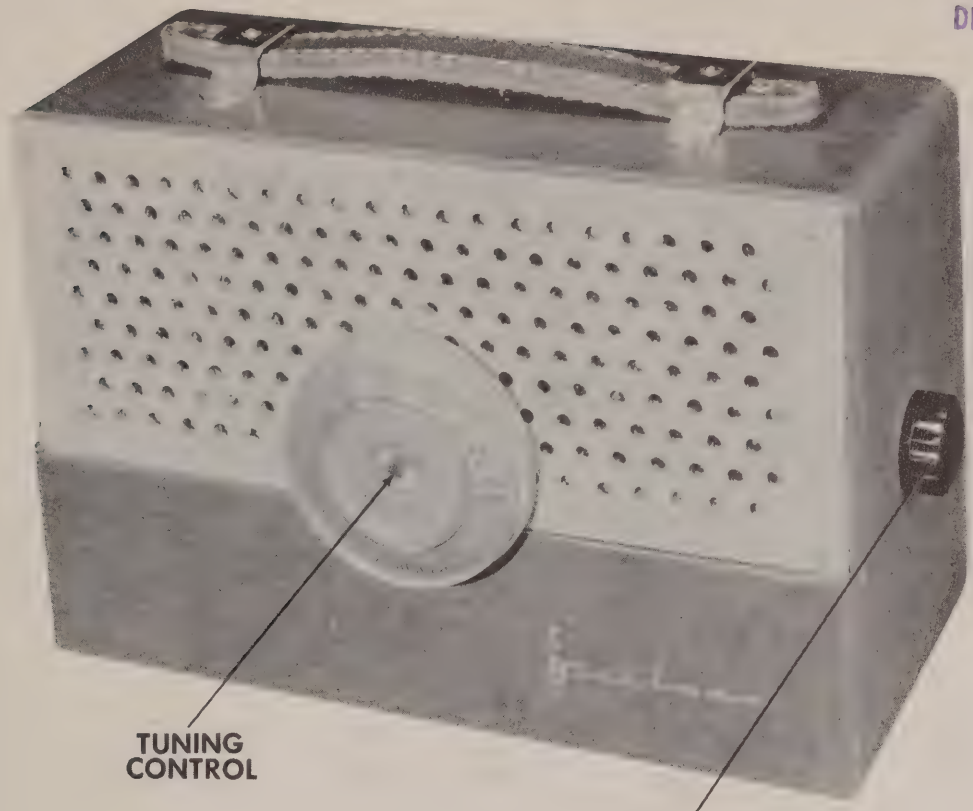
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

L. F.
3924 MEADE
DENVER, COLORADO



STEELMAN MODEL 601

TRADE NAME	Steelman Model 601
MANUFACTURER	Steelman Phono & Radio Co,, Inc., 12-30 Anderson Ave., Mt. Vernon, N.Y.
TYPE SET	Battery Operated Portable AM Superheterodyne Receiver
TUBES(Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVC-AF Amp. , 3V4 Audio Output
POWER SUPPLY	1.5 Volts "A" Supply & 67.5 Volts "B" Supply
RATING	250MA @ 1.5 Volts DC & 16MA @ 67.5 Volts DC
TUNING RANGE—BROADCAST	535-1620 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1 MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to chassis.	455 KC (400~ Mod.	Tuning gang fully open	Across voice coil	A1, A2 A3, A4	Adjust for maximum output.
2.	"	"	1620 KC	"	"	A5	"
3.		Loop	1400 KC	Tune to 1400 KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

After alignment has been completed replace receiver in cabinet, turn tuning gang fully closed and set 55 on dial to coincide with vertical index mark on front of cabinet.

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	NOTES
		STEELMAN PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det.-AVC-AF Amp	1U5	1U5	6BW	
V4	Audio Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	STEELMAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	8	150		PRS150/8		BR815		TC41	TVA-1405	
C2	.05	200		P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	47 .			SI47	D6-470	TM5Q5	GP1K-470	UC-5447	5GA-Q47	
C4	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C5	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D22	
C6	.01	600		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C7	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C8	.002	600		P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C9	.005	600		P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	STEELMAN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1Meg	½	VC-41	Q13-137	AG-63-Z	BSK-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	KSS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWB-2	Not Req.	US-27	Attach to R1A

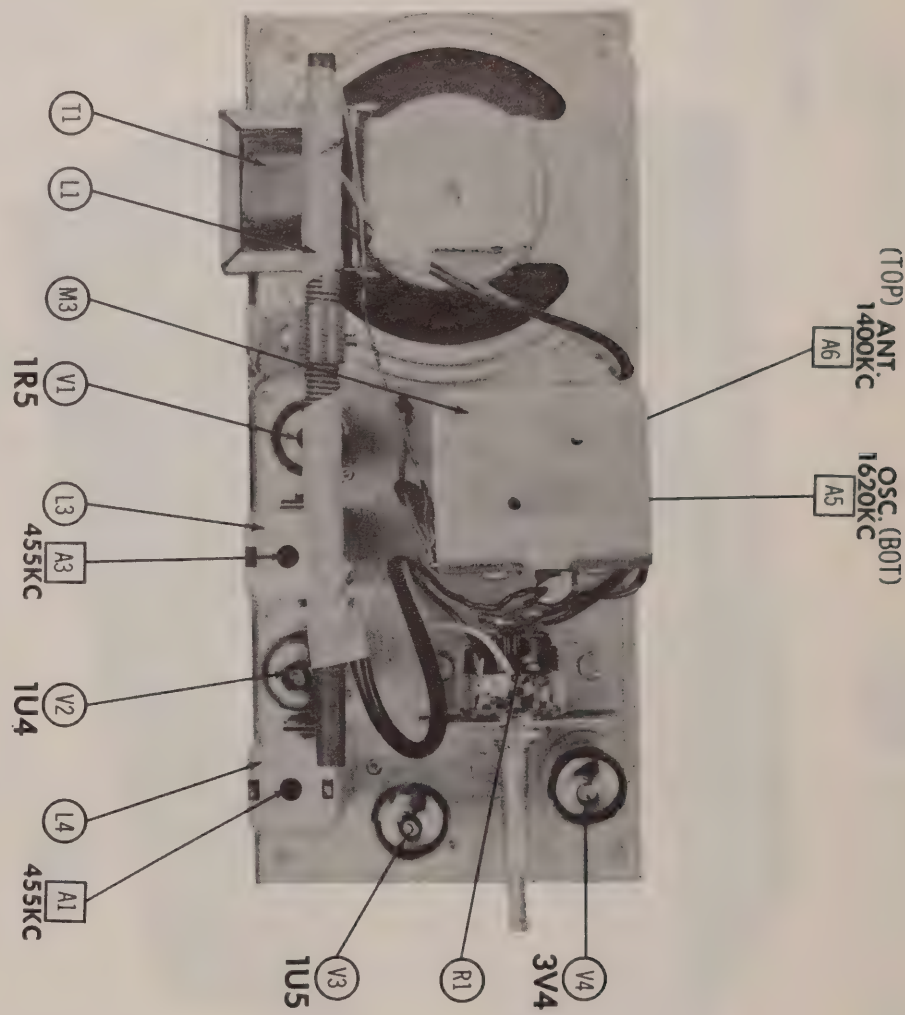
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	STEELMAN PART No.	IRC PART No.	
R2	100KΩ	½		BTS-100K	Osc. Grid
R3	2.2Meg	½		BTS-2.2Meg	AVC Network
R4	10Meg	½		BTS-10Meg	AF Amp. Grid
R5	4.7Meg	½		BTS-4.7Meg	AF Amp. Screen
R6	220KΩ	½		BTS-220K	AF Amp. Plate
R7	1Meg	½		BTS-1Meg	Output Grid
R8	390Ω	½		BTS-390	Bias Network

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		STEELMAN PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T1	8KΩ	3.2Ω	386Ω	.32Ω	38J103	A-8114 ①	A-2927 ①		S-8X ①	① Bend mtg. tabs down, file out slots, mount on orig. bracket.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	STEELMAN PART No.	MERIT PART No.	
L1	Loop Ant.	.5Ω				
L2	Osc. Coil	.8Ω	4.7Ω			
L3	Input IF	20Ω	20Ω	1655-1	BC-352	
L4	Output IF	20Ω	20Ω	1655-1	BC-353	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	STEELMAN PART No.	VIKING PART No.	QUAM PART No.	
SP1	3½"	PM	3.2Ω	3AM-19T	35J4	3A07	

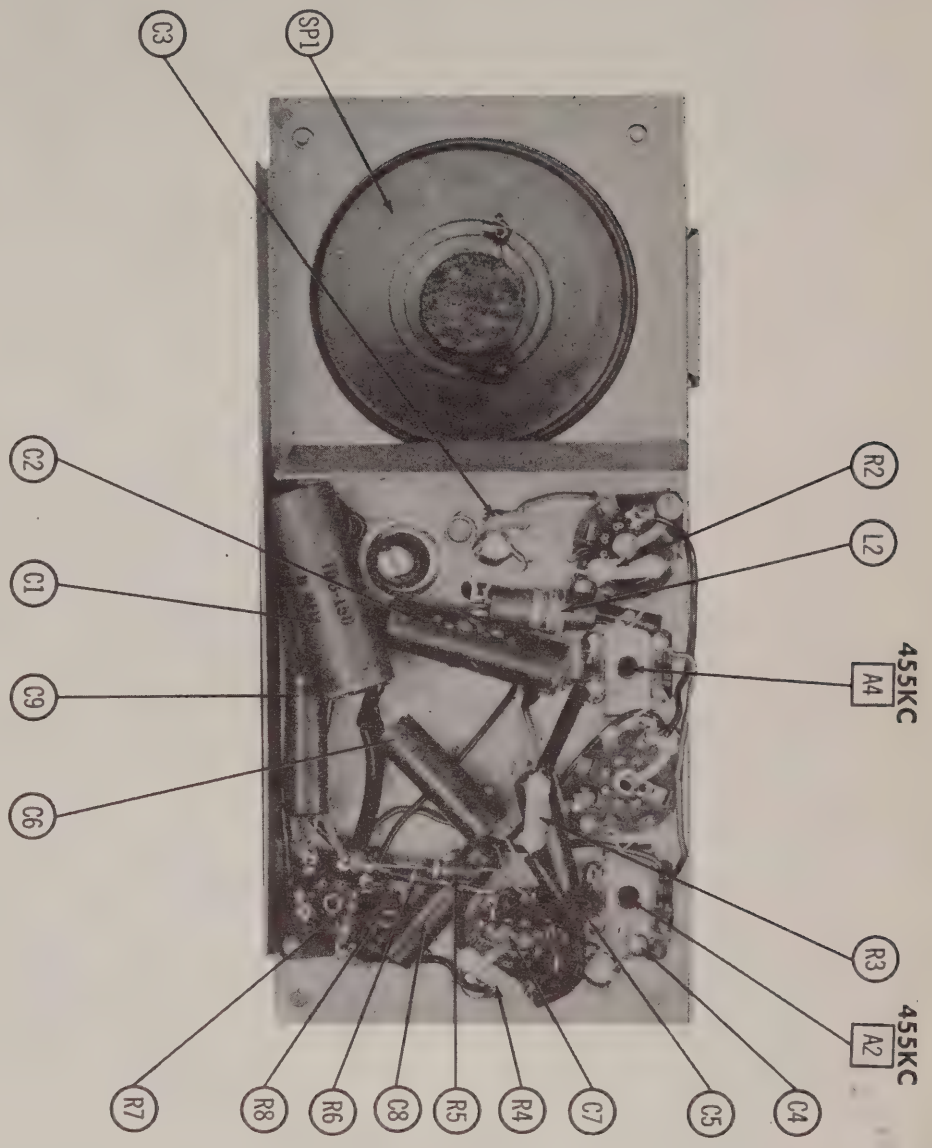
BATTERIES

ITEM No.	VOLTAGE	STEELMAN PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V.		720			2D			
M2	67.5V.			467			XX45		

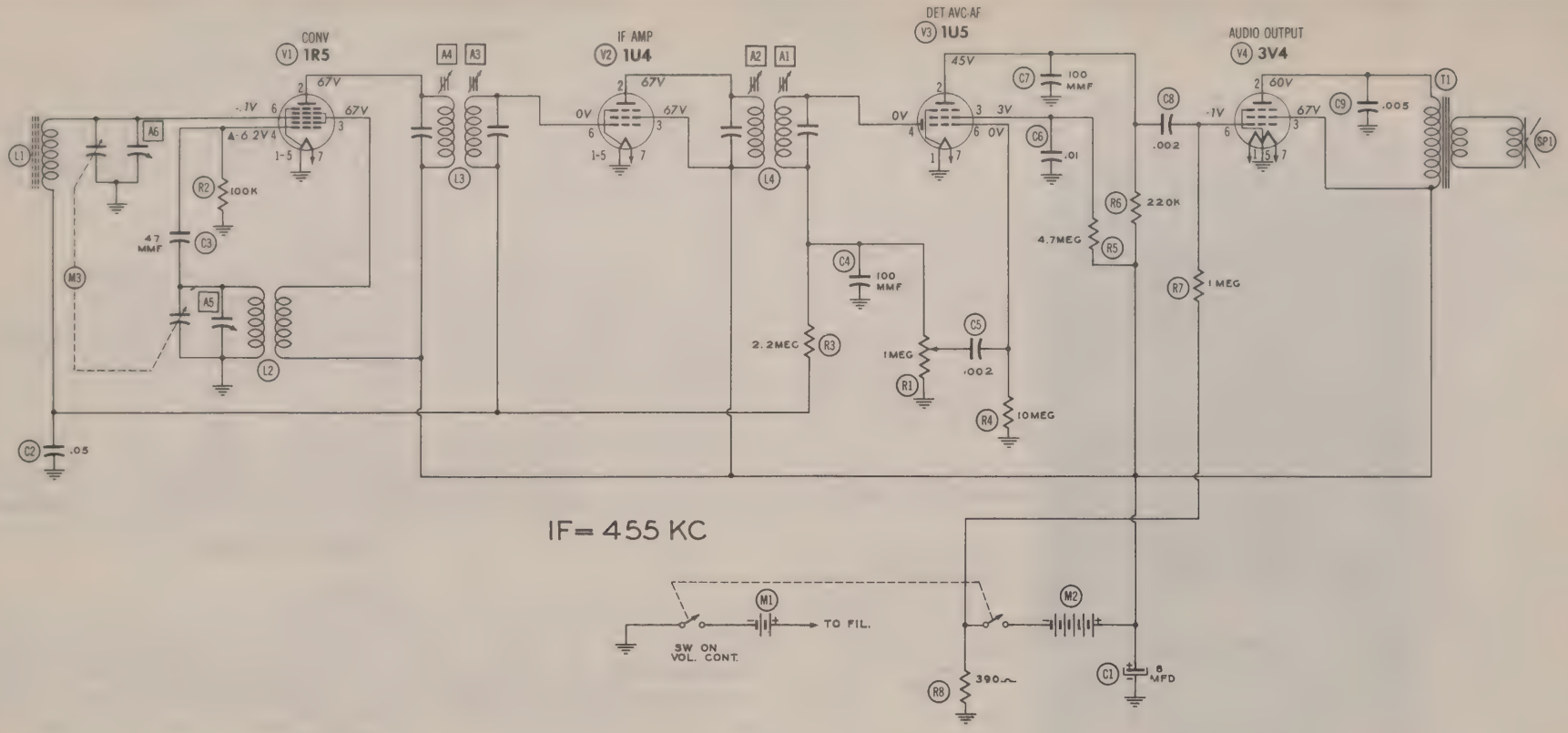
MISCELLANEOUS

ITEM No.	PART NAME	STEELMAN PART No.	NOTES
M3	2 Gang Var. Cap.		(39-472MMF, 33-202MMF)

CHASSIS—BOTTOM VIEW



STEELMAN MODEL 601



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†20Ω	†.8Ω	100KΩ	*	3.2Meg	0Ω
V 2	1U4	0Ω	†20Ω	†0Ω	0Ω	0Ω	3.2Meg	*
V 3	1U5	0Ω	†220KΩ	†4.7Meg	1Meg	INF	10Meg ▲	*
V 4	3V4	*	†386	†0Ω	390Ω	0Ω	.1Meg	*

▲ TAKEN WITH VACUUM TUBE VOLTMETER
* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE
† MEASURED FROM B+ LEAD TO BATTERY.

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1 - DC Voltage measurements are at 20,000 per volts.
2 - Socket connections are shown as bottom views.
3 - Measured values are from socket pin to common negative.
4 - Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5 - Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

TELE KING MODELS K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B (Ch. TVJ)

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MODEL KC21

TELE KING MODELS K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B (Ch. TVJ)

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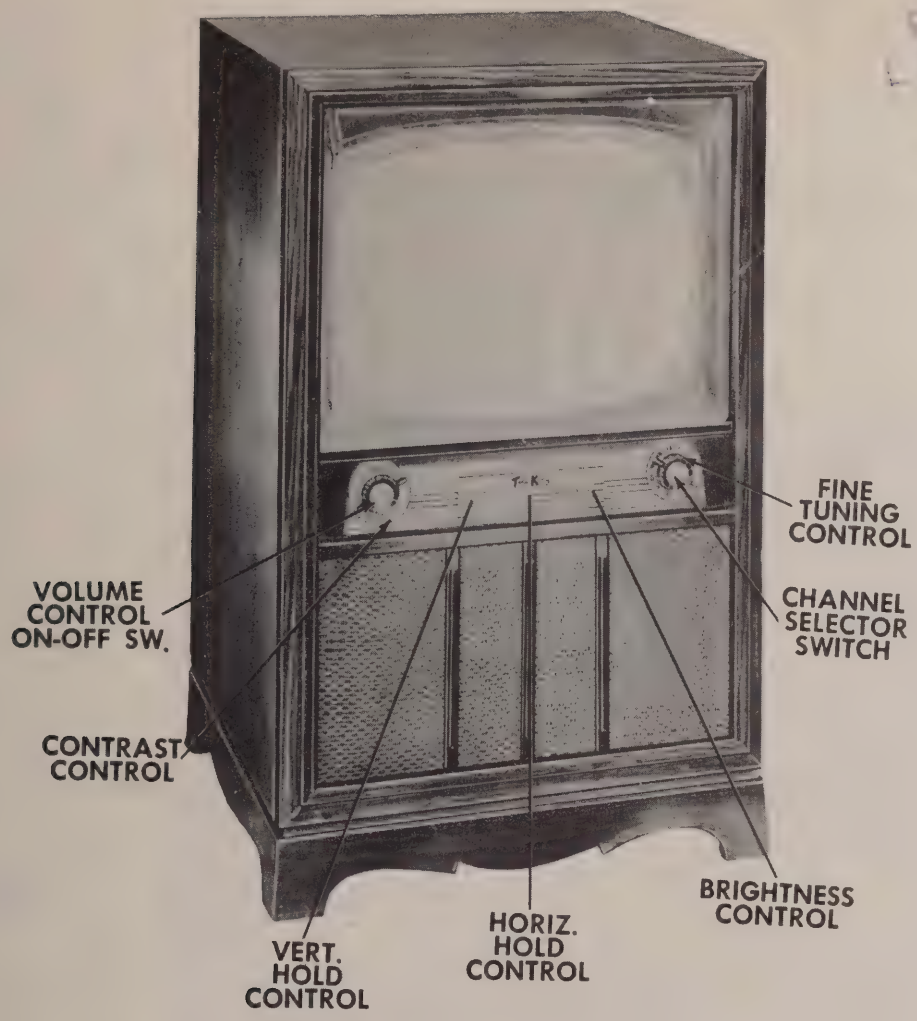
DATE 8-52 SET 177 FOLDER 13

PHOTOFACT* Folder
*TRADE MARK

TELE KING MODELS K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B (Ch. TVJ)



TELE KING MODELS K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B (Ch. TVJ)

TELE KING KC21

TRADE NAME	Tele King Models K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B (Ch. TVJ)
MANUFACTURER	Tele King Corp., 601 W. 26th. St., New York 1, N.Y.
TYPE SET	Television Receiver
TUBES	Eighteen
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 1.42 Amp. @ 117 Volts AC
TUNING RANGE	Channel 2 thru 13

INDEX

Alignment Instructions 6
Horizontal Sweep Circuit Adjustments 10
Parts List and Descriptions 12, 13, 15
Photographs
Capacitor and Alignment Identification 4, 9
Chassis - Rear View 10
Chassis - Top View 3
RF Tuner 7
Photographs (Cont.)
Resistor and Inductor Identification 11, 14
Resistance Measurements 8
Schematic 2
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

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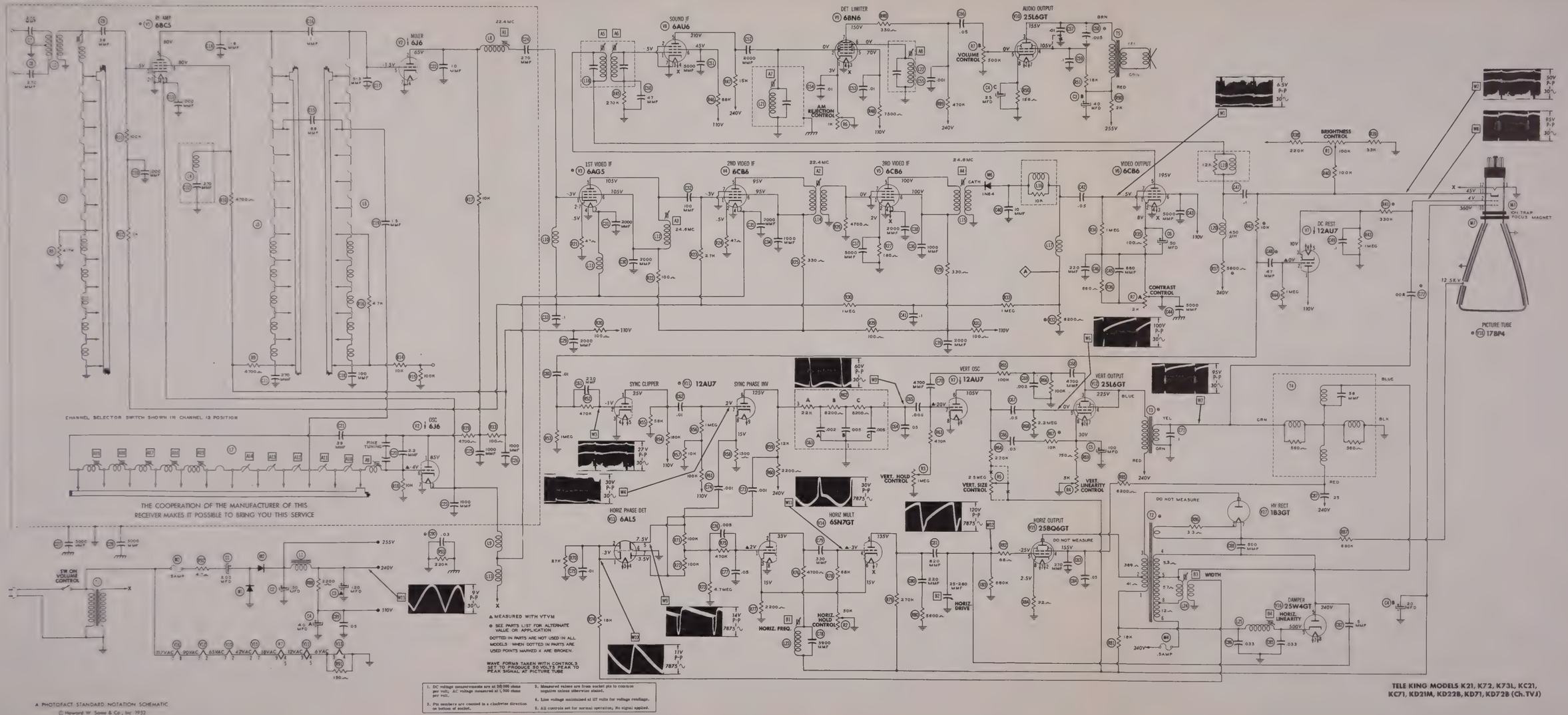
RF AMP 6BC5
MIXER 6J6
OSC 6J6
SOUND IF 6AU6
DET LIMITER 6BN6
AUDIO OUTPUT 25L6GT
1ST VIDEO IF 6AG5
2ND VIDEO IF 6CB6
3RD VIDEO IF 6CB6
VIDEO OUTPUT 6CB6
SYNC CLIPPER 12AU7
SYNC PHASE INV
VERT OSC 12AU7
VERT OUTPUT 25L6GT
HORIZ PHASE DET 6AL5
HORIZ MULT 6SN7GT
HORIZ OUTPUT 25BQ6GT
HV RECT 1B3GT
DAMPER 25W4GT
DC REST 12AU7
PICTURE TUBE 17BP4
BRIGHTNESS CONTROL
CONTRAST CONTROL
VOLUME CONTROL
A.M. REJECTION CONTROL
VERT. HOLD CONTROL
VERT. SIZE CONTROL
VERT. LINEARITY CONTROL
HORIZ. FREQ.
HORIZ. HOLD CONTROL
HORIZ. DRIVE
HORIZ. LINEARITY
WIDTH
ION TRAP FOCUS MAGNET
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
FINE TUNING
SW ON VOLUME CONTROL
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
DO NOT MEASURE
MEASURED WITH VTVM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.

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TELE KING MODELS K21, K72, K73L, KC21, KC71, KD21M, KD22B, KD71, KD72B, (Ch. TVJ)

TELE KING MODELS K21, K72, K73L KC21, KC71, KD21M, KD22B, KD71, KD72B, (Ch. TVJ)

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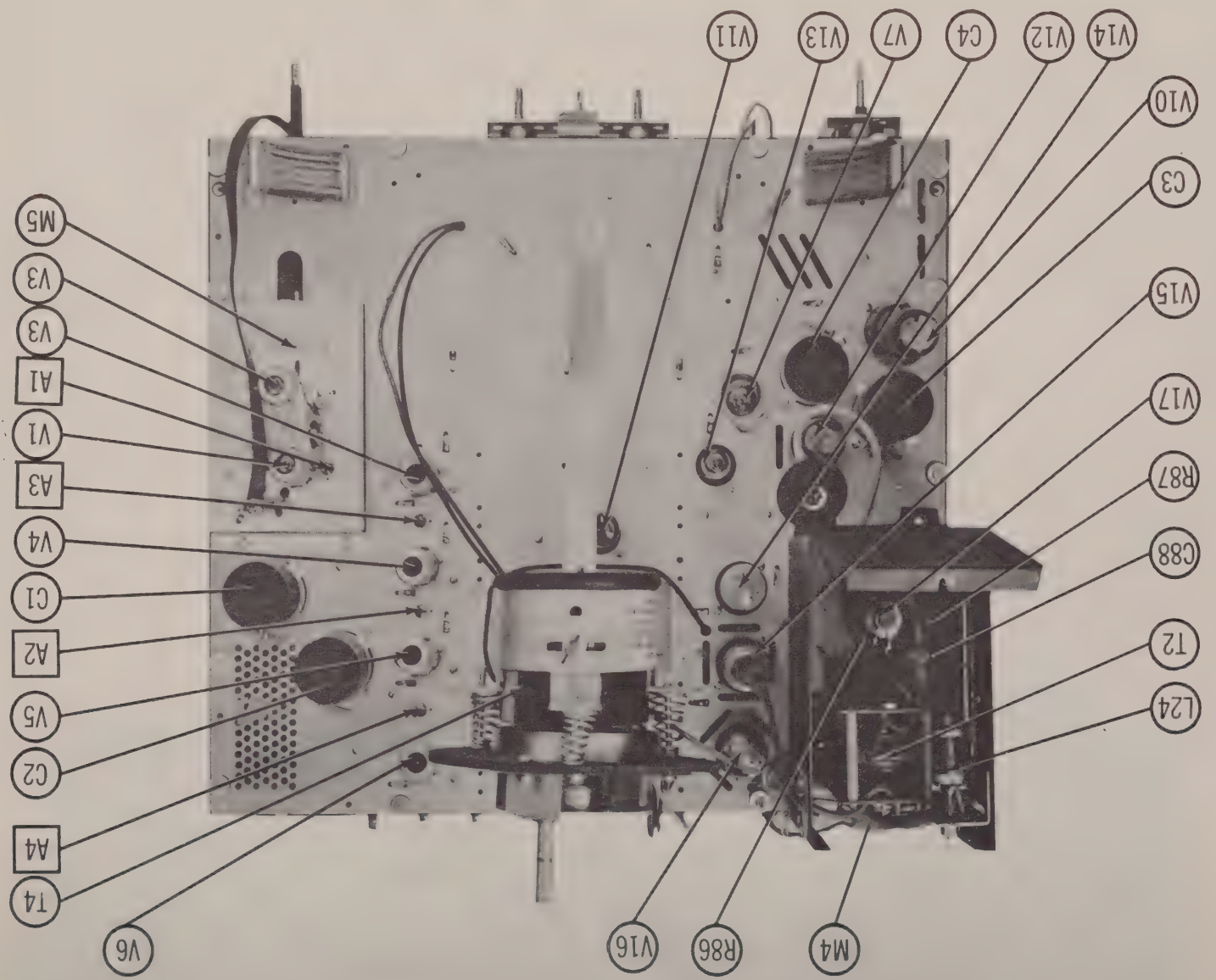
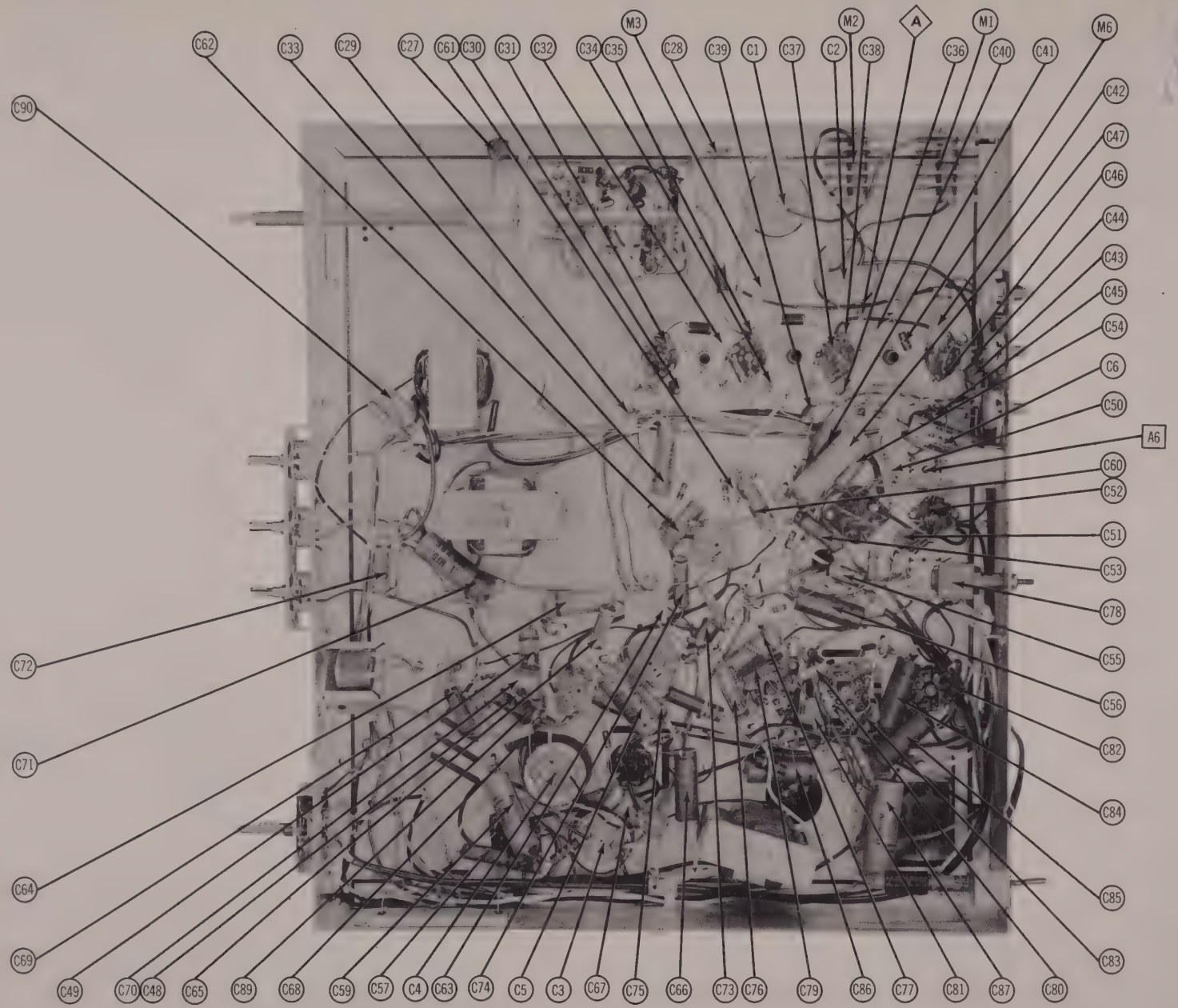
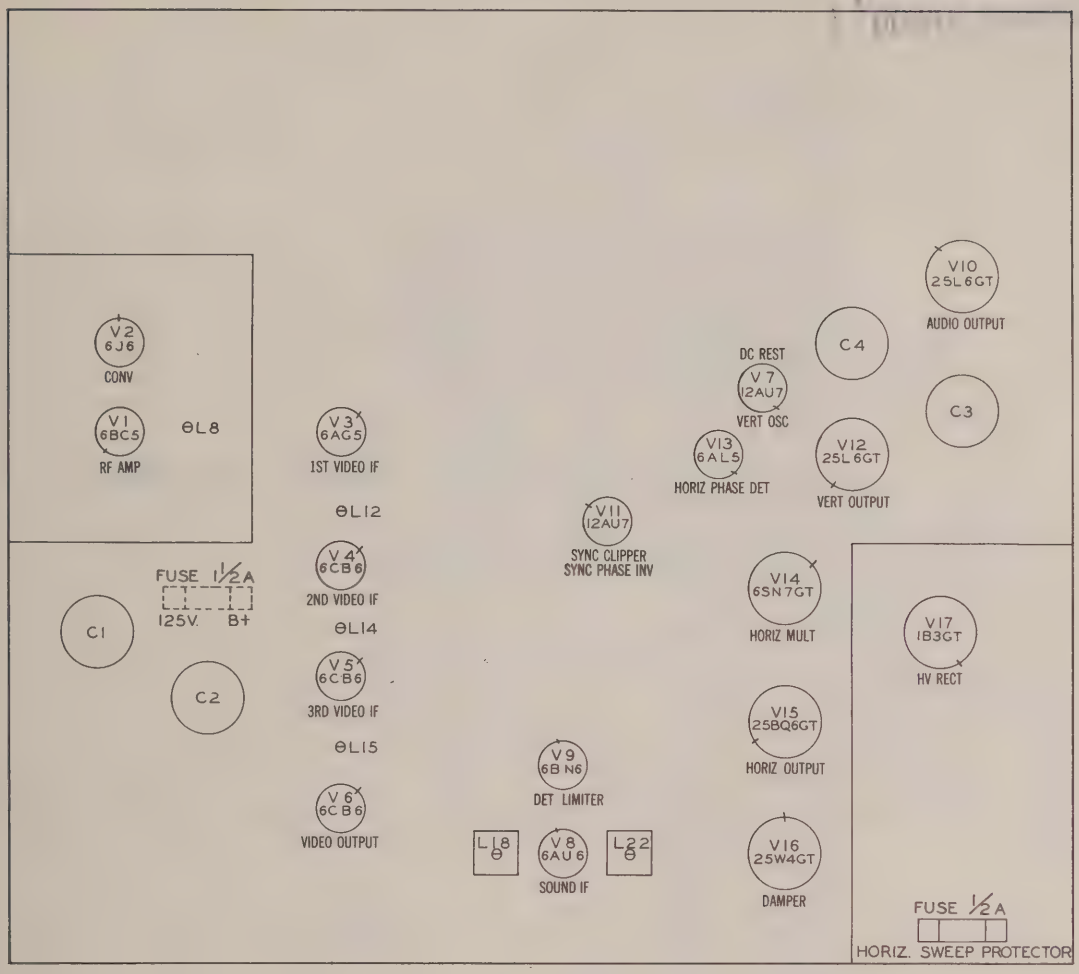
CHASSIS TOP VIEW





CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

TUBE PLACEMENT CHART



TOP VIEW

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most liekly to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No Raster, No Sound - Selenium Rectifier (M1, M2), Fuse (M3)

LOSS OF PICTURE OR SOUND
No Pic, No Sound, Has Raster - V2, V3, V4, V5, V6
No Pic, No Sound, Has Snow - V1, V2, V3
No Pic, Has Sound, Has Raster - V6, V7, V18
Has Pic, No Sound - V8, V9, V10

SYNC FAILURE
No Vert. Sync - V7, V11
No Horiz. Sync - V11, V13, V14
No Vert. or Horiz. Sync - V11, V7

SWEEP FAILURE
No Raster, Has Sound - V14, V15, V16, V17, V18, Fuse (M4)
No Vertical Deflection - V12
Poor Vert. Linearity or Foldover - V12, V7
Poor Horiz. Linearity or Foldover - V14, V15, V16
Narrow Picture - V14, V15, V16, M1, M2
Vert. Off Freq. - V7, V11
Horiz. Off Freq. - V11, V13, V14

NOTE: Since this receiver employs series connected filament, an open filament in any tube in series may cause the set to be inoperative.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube to disable the high voltage.
Make all test equipment ground returns to B- (top chassis plate).
Use isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube, V2, and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to B-.	22.4MC (Unmod.)	Any	DC probe to point (A). Common to B-.	A1, A2	Adjust for maximum deflection.
2.	"	"	24.6MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Direct	High side to an ungrounded tube shield floating over dummy converter tube (V2). Low side to B-.	24MC (10MC Swp)	20.6MC 22.0MC 25.1MC 26.6MC	Any	Vert. amp. to point (A). Low side to B-.		Check for response curve similar to fig.1 If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Tune in a TV station and connect an attenuator in series with the antenna.
Attenuate the input until the sound signal drops below the limiting level of the 6BN6 as indicated by a hiss similar to superregeneration.
Adjust the sound take-off transformer (A5 and A6) for maximum audio.
Adjust A7 for maximum audio signal regardless of hiss or buzz. If during the above adjustments the signal rises above the limiting level as indicated by the disappearance of the hiss, reduce the signal input until the hiss returns.
When maximum sound output has been reached through adjustment of A5, A6 and A7 increase the signal input to the point where the hiss disappears and adjust A8 for maximum sound output.
Adjust the AM rejection control R6 for minimum intercarrier buzz, then repeat the adjustment of A8 and R6.

OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
There is no individual oscillator adjustment for channel 7 as the alignment for channel 8 assures proper alignment of channel 7 oscillator.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (A). Low side to B-.	A9	Adjust to place video marker at 50% on response curve as per fig. 2.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A10	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A11	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A12	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A13	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A14	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A15	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A16	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A17	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A18	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A19	

The RF and Mixer portion of this tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

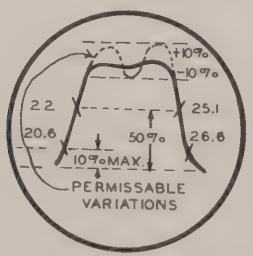


FIG. 1

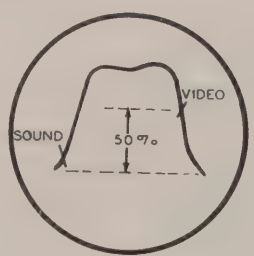
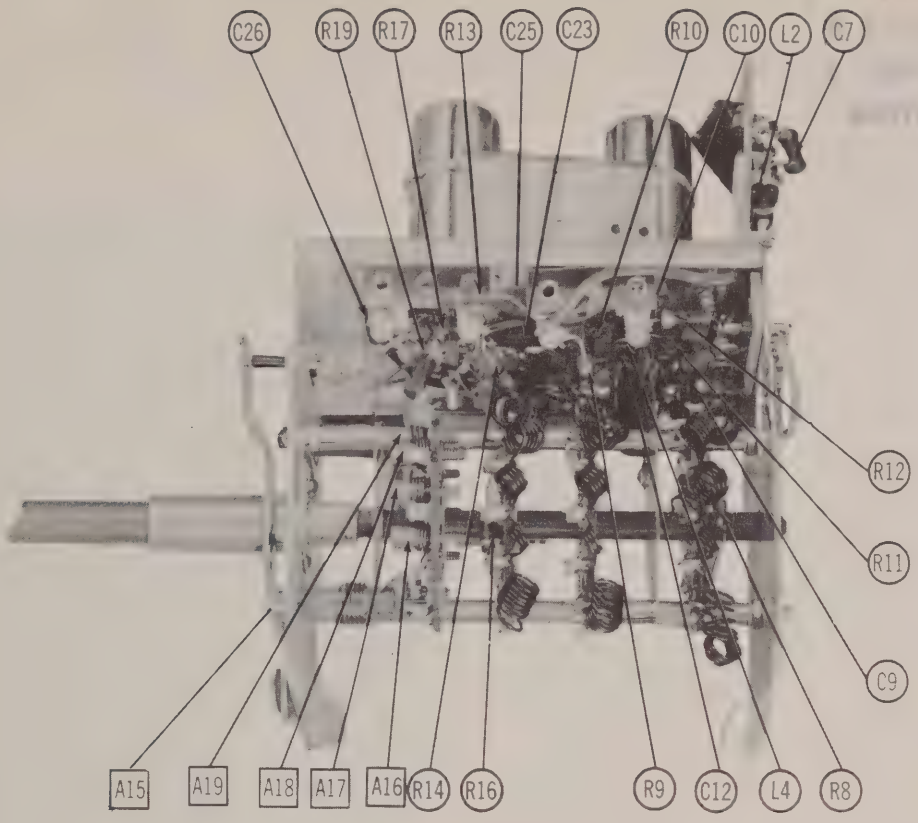
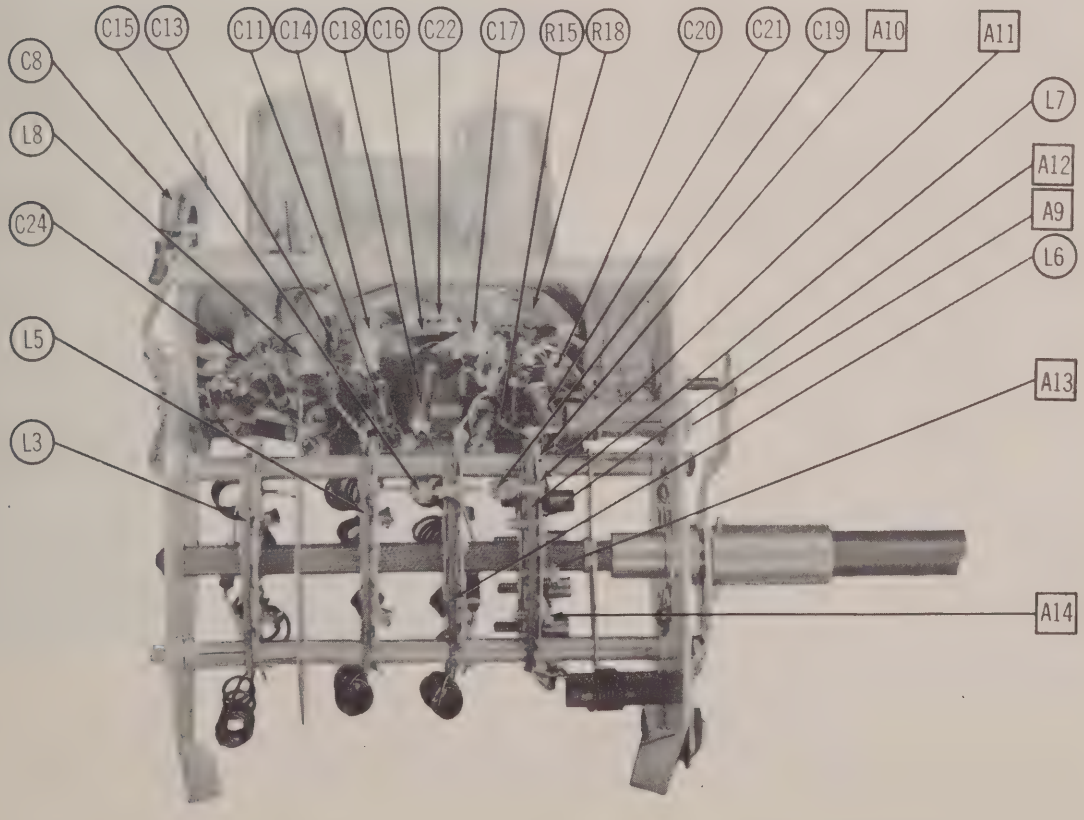


FIG. 2



RF TUNER-RIGHT SIDE

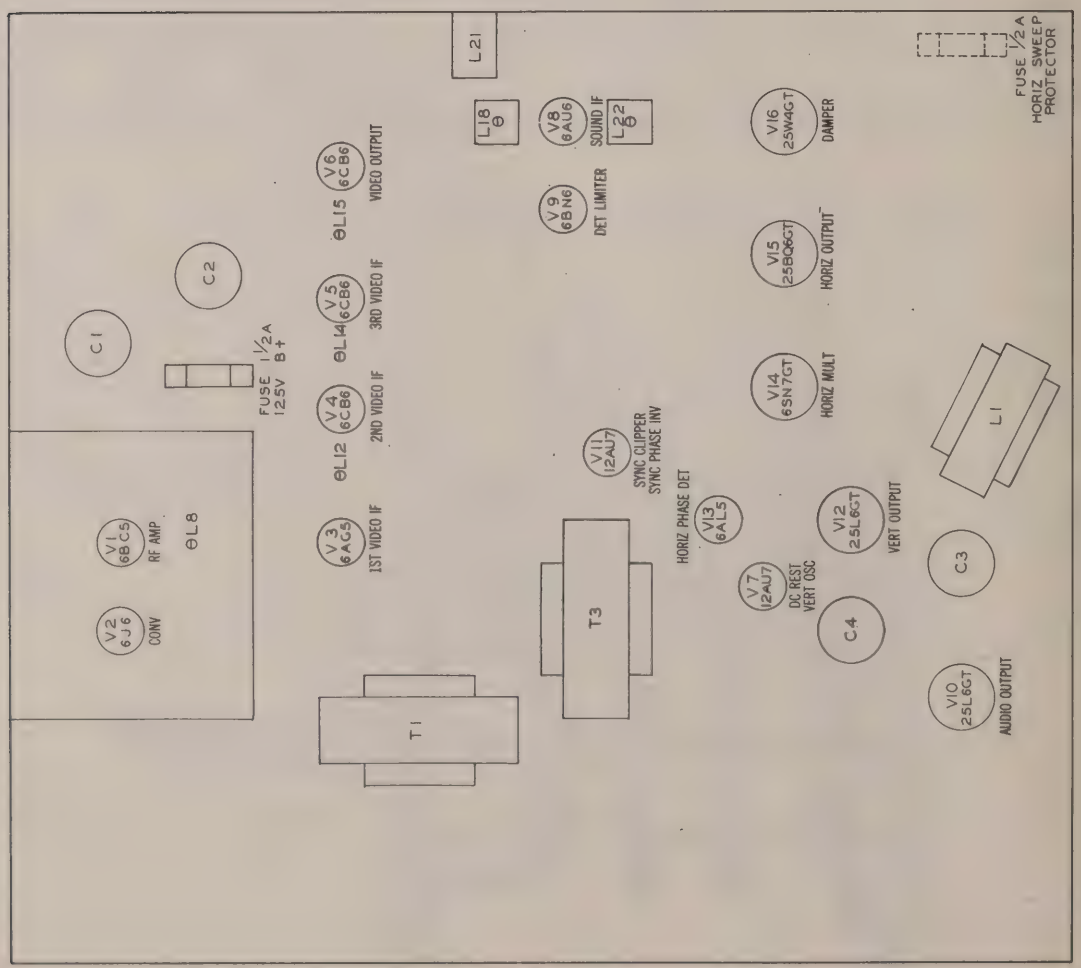


RF TUNER-LEFT SIDE

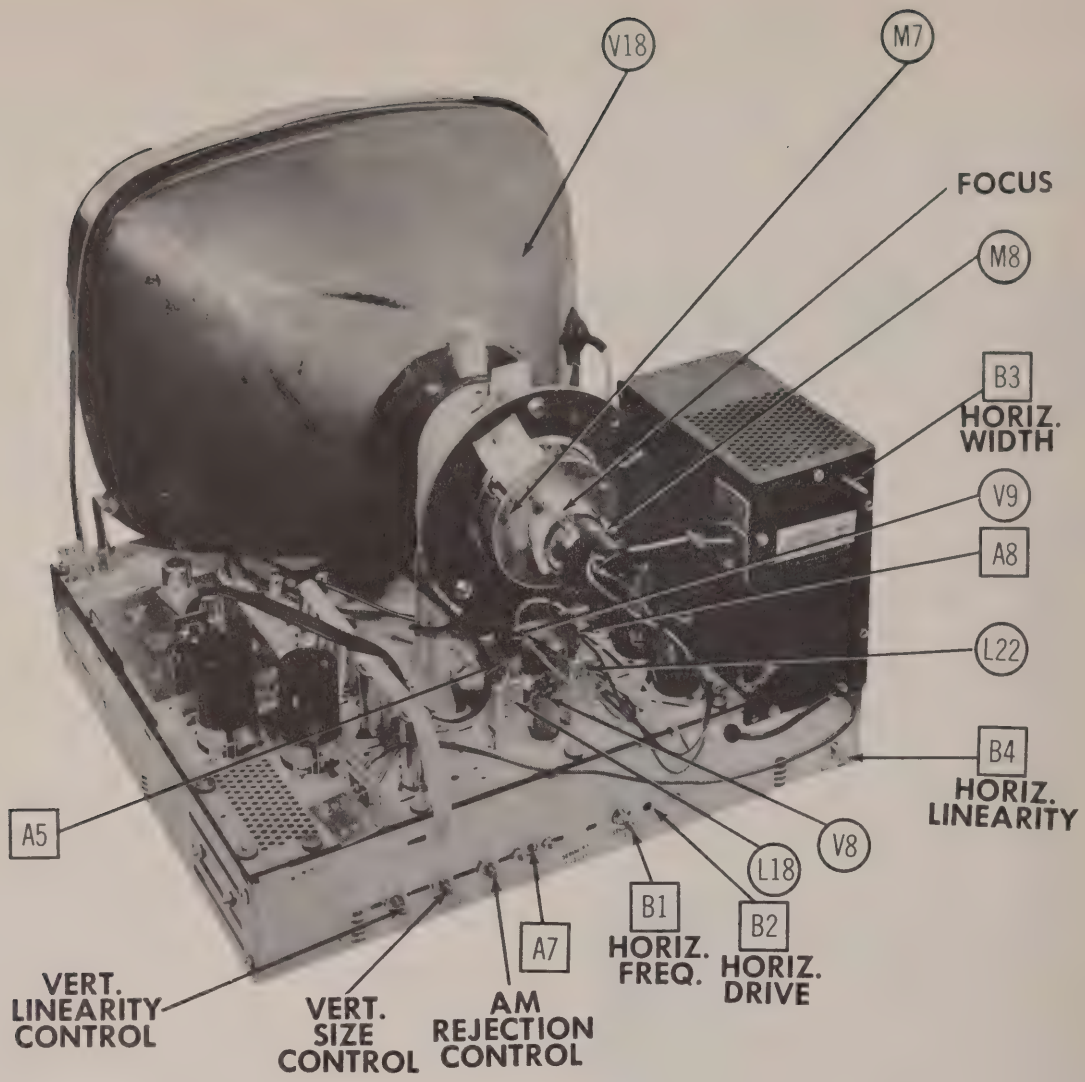
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	2.1Meg	0Ω	.1Ω	0Ω	†7.1KΩ	†7.1KΩ	0Ω		
V 2	6J6	†7.2KΩ	†12KΩ	.1Ω	0Ω	110KΩ	10KΩ	0Ω		
V 3	6AG5	2Meg	47Ω	.1Ω	0Ω	†2.6KΩ	†2.6KΩ	47Ω		
V 4	6CB6	2Meg	47Ω	.1Ω	0Ω	†2.8KΩ	†2.8KΩ	0Ω		
V 5	6CB6	.2Ω	180Ω	.1Ω	0Ω	†2.7KΩ	†2.7KΩ	0Ω		
V 6	6CB6	1Meg	1KΩ	.1Ω	0Ω	†5.7KΩ	†2.3KΩ	0Ω		
V 7	12AU7	†2.3KΩ	1Meg	1Meg	8Ω	8Ω	#1.7Meg	1Meg	0Ω	9Ω
V 8	6AU6	270KΩ	0Ω	0Ω	.1Ω	†15KΩ	†68KΩ	0Ω		
V 9	6BN6	400Ω	1.9Ω	.1Ω	0Ω	†9.8KΩ	22Ω	†470KΩ		
V 10	25L6GT	INF	16Ω	†2.3KΩ	†20KΩ	180KΩ	INF	19Ω	150Ω	
V 11	12AU7	56KΩ	1.5Meg	0Ω	4Ω	4Ω	†14KΩ	1Meg	1.5KΩ	8Ω
V 12	25L6GT	INF	19Ω	†785Ω	†785Ω	2.2Meg	#1.5Meg	21Ω	1KΩ	
V 13	6AL5	12KΩ	12KΩ	4Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 14	6SN7GT	5.1Meg	#22KΩ	2.2KΩ	100KΩ	#290KΩ	2.2KΩ	.1Ω	0Ω	
V 15	25BQ6GT	0Ω	16Ω	INF	†6.3KΩ	680KΩ	56KΩ	9Ω	22Ω	TOP CAP #68Ω
V 16	25W4GT	INF	INF	1.8Meg	INF	†90Ω	1.8Meg	19Ω	21Ω	
V 17	1B3GT	PINS	1 - 8	HAVE	INF	RESISTANCE				TOP CAP #437Ω
V 18	17BP4	0Ω	1.3Meg	PIN 10 #18KΩ	PIN 11 160KΩ	PIN 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM OUTPUT OF M 2
# MEASURED FROM PIN 3 OF V16



TUBE PLACEMENT CHART



CHASSIS – REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold control to the mid-position of its range.

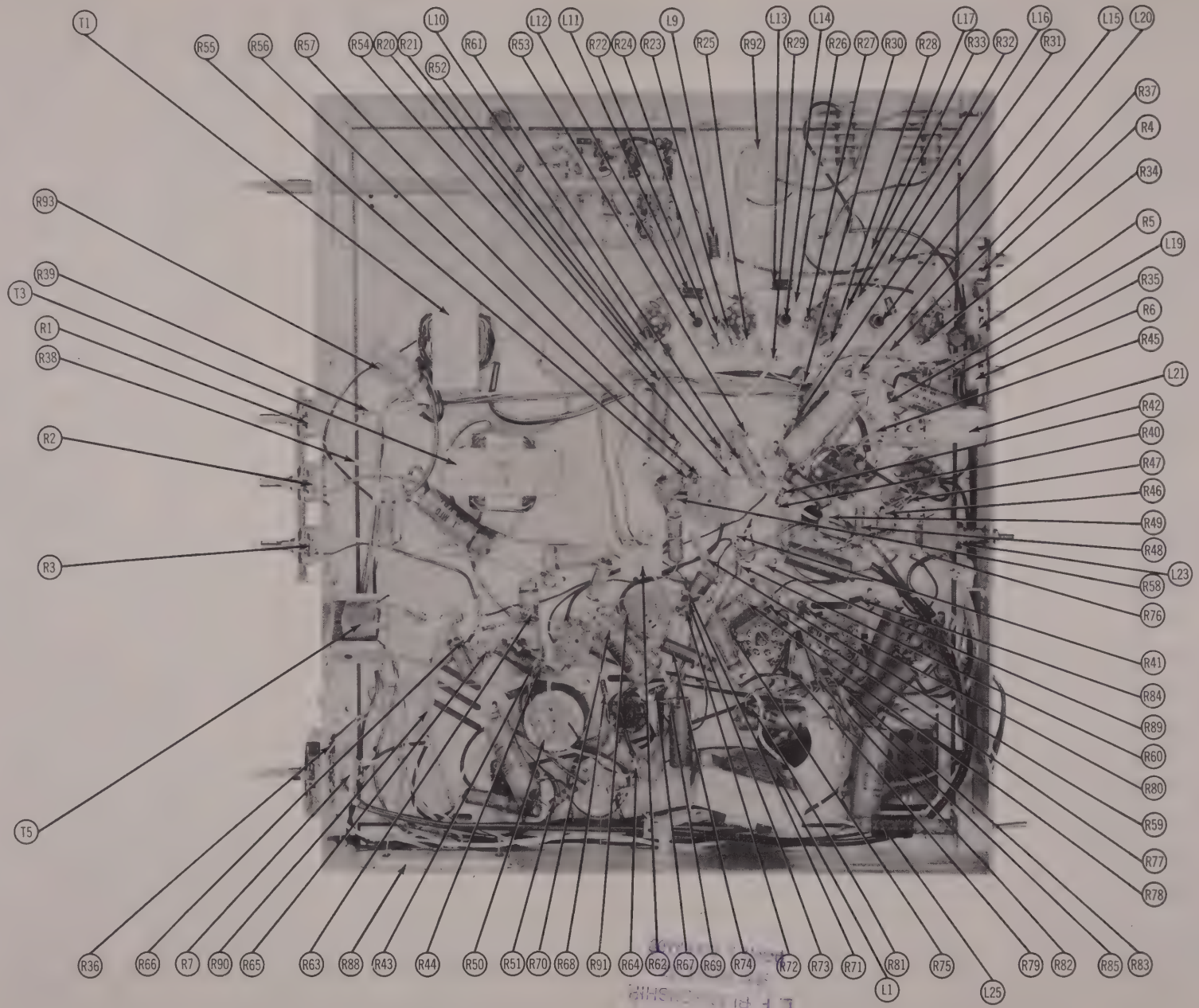
Adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally.

Adjust the horizontal drive trimmer (B2) for the best compromise between brightness and horizontal linearity.

Adjust the width slug (B3) for a picture slightly wider than enough to fill the picture mask horizontally.

Adjust the horizontal linearity slug (B4) for a picture that is symmetrical from left to right.

Slight readjustment of B2 may be necessary for optimum results .



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TELE KING PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amplifier	6BC5	6BC5	7BD	
B	RF Amplifier	6AG5	6AG5	7BD	
C	RF Amplifier	6CB6	6CB6	7CM	
V2	Converter	6J6	6J6	7BF	
V3A	1st. Video IF Amp.	6AG5	6AG5	7BD	
B	1st. Video IF Amp.	6BC5	6BC5	7BD	
V4	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Output	6CB6	6CB6	7CM	
V7	DC Restorer - Vert. Oscillator	12AU7	12AU7	9A	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Detector - Limiter - AF Amplifier	6BN6	6BN6	7DF	
V10	Audio Output	25L6GT	25L6GT	7AC	
V11A	Sync Clipper - Sync Phase Inv.	12AU7	12AU7	9A	
B	Sync Clipper - Sync Phase Inv.	12AT7	12AT7	9A	
V12	Vert. Output	25L6GT	25L6GT	7AC	
V13	Horiz. Phase Det.	6AL5	6AL5	6BT	
V14	Horiz. AFC-Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	25BQ6GT	25BQ6GT	6AM	
V16	Damper	25W4GT	25W4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TELE KING PART No.	REPLACEMENT DATA: SYLVANIA PART No.		RTMA BASE TYPE	NOTES
V18A	17BP4	17BP4		12D	① Circuit changes necessary
		17BP4A		12D	② 3/8" longer
		17HP4 ①		12C	
		17HP4A ①		12C	
B	17CP4	17CP4		12D	
C	17RP4	17RP4 ①		12C	
		17HP4 ①		12C	
D	20BP4	20BP4		12D	
E	20CP4	20CP4		12D	
		20CP4A ①		12D	
		20DP4 ① ②		12D	
		20DP4A ②		12D	
		20HP4 ① ②		12C	
		20HP4A ① ②		12C	
		20LP4 ① ②		12C	
		20MP4 ① ②		12C	
F	20RP4			12C	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE KING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	200	150	CEM-9-E	AFH 2-22				FP119	TVL-1431	
C2	150	300	CEM-10-E					FP229.3	TVL-1584	
C3A	≈120	300	CEM-11					FP140	TVL-3585	
B	≈40	300						TC78		
C4A	≈40	450	CEM-12	AFH4-67		UP4245C		FP346	TVL-4729	
B	≈20	450								
C	≈25	25								
C5	100	25	CET-5	PRS25/100		BRH251A		TC2501	TVA-1207	
C6	50	25	CET-8	PRS25/50		BR502A		TC29	TVA-1206	
C7	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C8	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C9	39			SI39	D6-390		GP1K-390	UC-5439	5GA-Q39	
C10	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C11	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C12	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C13	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C14	1-6				829-6					
C15	.68				TCZ-.68		NP0K-R68			
C16	1				TCZ-1		NP0K-010		5TCCB-V1	
C17	.5-3				829-3			CT65A		
C18	100			SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C19	1.5			SII.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515	5TCCB-V15	
C20	2.2						N750K-2R2			
C21	39			SI39	D6-390		GP1K-390	UC-5439	5GA-Q39	
C22	10			SI10	D6-100		GP1K-100	UC-541	5GA-Q1	
C23	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C24	270			SI270	D6-271		GP2K-271	UC-5327	5GA-T27	
C25	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C26	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C27	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C30	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C31	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C32	100		CC-31	SI100	D6-101	TM5T1	GP1K-101	UC-531	5GA-T1	
C33	.1	200	CP-3-01	P288-1	DF-104	PT2P1		PT401	2TM-P1	
C34	1000			BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C35	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C36	1000		CC-21	SI1000	D6-102	TM5D1	GP2L-102	UC-521	5HK-D1	
C37	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C38	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C39	2000		CC-22	BPD-002	DD-202	TM5D2	801-002	DC-522	5HK-D2	
C40	10		CC-41	SI10	D6-100	5W5Q1	GP1K-100	UC-541	5GA-Q1	
C41	.1	200	CP-2-01	P288-1	DF-104	PT2P1		PT401	2TM-P1	
C42	.05	200	CP-2-15	P288-05	DF-503	PT2S5		PT415	2TM-S5	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TELE KING PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C43	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C44	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C45	680		CC-368	SI680	D6-681	2R5T7	GP2K-681	UC-5368	5GA-T68	
C46	220		CC-322	SI220	D6-221	5W5T25	GP2K-221	UC-5322	5GA-T22	
C47	.1	600	CP-6-01	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C48	47		CC-447	SI47	D6-470	5W5Q5	GP1K-470	UC-5447	5GA-Q47	Note 1
C49	.1	200	CP-2-01	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C50	47		CC-447	SI47	D6-470	5W5Q5	GP1K-470	UC-5447	5GA-Q47	
C51	5000		CC-25	BPD-005	DD-502	TM5D5	811-005	DC-525	5HK-D5	
C52	2000		CC-22	BPD-002	DD-202	TM5D2	801-001	DC-522	5HK-D2	
C53	.01	600	CP-6-11	P688-01	D6-103		PTE6S1	GP2-333-103	PT611	6TM-S1	
C54	.01	600	CP-6-11	P688-01	D6-103		PTE6S1	GP2-333-103	PT611	6TM-S1	
C55	.001	600	CP-6-21	P688-001	D6-102		PTE6D1	GP2L-102	PT621	6TM-D1	
C56	.05	600	CP-6-15	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C57	.01	1000	CP-10-11	P1088-01			PTE16S1		PT1611	MB-S1	
C58	.005	1000		P1088-005			PTE16D5		PT1625	MB-D5	Note 2
C59	.1	600	CP-6-01	P688-1	DF-104		PTE6P1		PT601	6TM-P1	
C60	.01	600	CP-6-11	P688-01	D6-103		PTE6S1	GP2-333-103	PT611	6TM-S1	
C61	220	500	CM-322	1468-00025	D6-221		5W5T25	GP2K-221	MC240	1FM-325	
C62	.01	600	CP-6-11	P688-01	D6-103		PTE6S1	GP2-333-103	PT611	6TM-S1	
C63A	.002			P688-002			PTE6D2	GP2-333-202	PT622		
B	.005		♦CRP-3	P688-005	♦PC-100		PTE6D5	GP2-333-502	PT625	♦101C1	
C	.005			P688-005			PTE6D5	GP2-333-502	PT625		
C64	.05	600	CP-6-15	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C65	.005	600	CP-6-25	P688-005	D6-502		PTE6D5	GP2-333-502	PT625	6TM-D5	
C66	.05	600	CP-6-15-9	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C67	.05	600	CP-6-15	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C68	4700	800	CM-247A-1								
C69	.002	600	CP-6-22	P688-002	D6-202		PTE6D2	GP2-333-202	PT622	6TM-D2	
C70	4700	800	CM-247A-1								
C71	.1	600	CP-6-01-3	P688-1	DF-104		PTE6P1		PT601	6TM-P1	
C72	.002	600	CP-6-22	P688-002	D6-202		PTE6D2	GP2-333-202	PT622	6TM-D2	Note 3
C73	.001	600	CP-6-21	P688-001	D6-102		PTE6D1	GP2L-102	PT621	6TM-D1	
C74	.001	600	CP-6-21	P688-001	D6-102		PTE6D1	GP2L-102	PT621	6TM-D1	
C75	.01	600	CP-6-11	P688-01	D6-102		PTE6S1	GP2-333-103	PT611	6TM-S1	
C76	.005	600	CP-6-25	P688-005	D6-502		PTE6D5	GP2-333-502	PT625	6TM-D5	
C77	.05	600	CP-6-15	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C78	3900	500	CM-239	1464-004			1DR5D4		MCB463		
C79	330	500	CM-333A	1469-00035							
C80	220	500	CM-322	1469-00025			5R5T25		MCB240		
C81	820	500	CM-382						MCK382		
C82	5	5000	CHV-55-5K								
C83	270	500	CM-327	1468-0003	D6-271		5W5T3	GP2K-271	MC241	MS-33	
C84	.05	600	CP-6-15	P688-05	DF-503		PTE6S5		PT615	6TM-S5	
C85	.033	1000	CO-10-13	P1088-033			PTE16S3		TP464	MB-S3	
C86	.033	1000	CO-10-13	P1088-033			PTE16S3		TP464	MB-S3	
C87	.25	400	CP-4-025	P488-25			PTE4P25		TP430	4TM-P25	
C88	500	20000	CHV-25-20A	HV-20C	TV3-502		MM-C20T5			20DK-T5	
C89	.05	200	CP-2-15	P288-05	DF-503		PJ2S5		PT415	2TM-S5	
C90	.03	600		P688-03			PTE6S5		PT613	6TM-S3	Note 1

Note 1. Some models use .05MFD in this application (Part #CP-6-15)
Note 2. Not used in all models.
Note 3. Some models use .01MFD in this application (Part #CP-6-11)
♦ Items C63A, C63C, C63C, R62A, R62B, R62C are combined in one unit.

CONTROLS

ITEM No.	RATING: RESIST. ANCE	RATING: WATTS	REPLACEMENT DATA: TELE KING PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	P-15 §	Q11-128	AG-49-S	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
R2A	50KΩ	½	P-14 ¶	Q11-123	AG-44-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	P-13 *	Q11-137	AG-61-S	AB-69	U-54	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	5000Ω	½	P-2D	Q11-114	AG-19-S	AB-13	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R4A
R5A	2.5Meg	½	P-5D	Q11-239	AG-84-S	AB-83	SU-565	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R5A
R6A	1000Ω	½	P-12D	Q11-108	AG-8-S	AB-5		AM Rejection
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1		Attach to R6A
R7A	2000Ω	½	PD-9♦	QJ-331†				Contrast - Tapped ⑤ 1500Ω - Panel
B	500KΩ	½						Volume & Sw. - rear

§ Some models use alternate control (part #P-19-B)
¶ Some models use alternate control (part #P-18-B)
* Some models use alternate control (part #P-17-B)
♦ Some models use alternate control (part #PD-10-A)
† CONCENTRIKIT EQUIVALENT, KIT K-2, BASE ELEMENTS & SHAFTS B17-110X & P2-031 (Panel) B13-133 & R1-115 (Rear) & SWITCH 76-1

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE KING PART No.	IRC PART No.	IDENTIFICATION CODES ALL RESISTORS ± 10% UNLESS OTHERWISE NOTED
R8	4700Ω	½		BTS-4700	Antenna Coil Shunt
R9	4700Ω	½		BTS-4700	RF Amp. Plate
R10	4700Ω	½		BTS-4700	RF Amp. Screen
R11	100KΩ	½		BTS-100K	RF Amp. Grid
R12	1000Ω	½		BTS-1000	AGC Network
R13	100Ω	20%		BTS-100	Decoupling
R14	10KΩ	½		BTS-10K	Mixer Grid
R15	100KΩ	½		BTS-100K	Mixer Grid
R16	4700Ω	½		BTS-4700	Mixer Grid Coil Shunt
R17	10KΩ	½		BTS-10K	Mixer Plate
R18	10KΩ	½		BTS-10K	Osc. Grid
R19	4700Ω	½		BTS-4700	Osc. Plate
R20	100Ω	½	RC-101-2	BTS-100	Decoupling
R21	47Ω	½	RC-470-2		1st. Video IF Amp. Cathode
R22	100Ω	½	RC-101-2	BTS-100	1st. Video IF Amp. Decoupling
R23	27KΩ	½	RC-273-2	BTS-27K	2nd. Video IF Amp. Grid
R24	47Ω	½	RC-470-2		2nd. Video IF Amp. Cathode

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TELE KING PART No.	IRC PART No.	IDENTIFICATION CODES
R25	330Ω	½	RC-331-2	BTS-330	2nd. Video IF Amp. Decoupling
R26	4700Ω	½	RC-472-2	BTS-4700	3rd. Video IF Coil Shunt
R27	180Ω	½	RC-181-2	BTS-180	3rd. Video IF Amp. Cathode
R28	330Ω	½	RC-331-2	BTS-330	3rd. Video IF Amp. Decoupling
R29	100Ω	½	RC-101-2	BTS-100	Decoupling
R30	1Meg	½	RC-105-2	BTS-1Meg	AGC Network
R31	100Ω	½	RC-101-2	BTS-100	Decoupling
R32	8200Ω	½	RC-822-2	BTS-8200	Video Det. Load - See Note 1
R33	1Meg	½	RC-105-2	BTS-1Meg	AGC Network
R34	1Meg	½	RC-105-2	BTS-1Meg	Video Output Grid
R35	100Ω	½	RC-101-2	BTS-100	Video Output Cathode
R36	[illegible]	½	RC-681-2	BTS-680	Contrast Control Shunt
R37	5600Ω	2	RC-562-8	BTB-5600	Video Output Plate - See Note 2
R38	220KΩ	½	RC-224-2	BTS-220K	Voltage Divider
R39	33KΩ	½	RC-333-2	BTS-33K	Voltage Divider
R40	100KΩ	½	RC-104-2	BTS-100K	Picture Tube Cathode
R41	330KΩ	½	RC-334-2	BTS-330K	Picture Tube Grid - See Note 3
R42	10KΩ	½	RC-103-2	BTS-10K	Isolation - See Note 3
R43	1Meg	½	RC-105-2	BTS-1Meg	DC Restorer Cathode
R44	1Meg	½	RC-105-2	BTS-1Meg	DC Restorer Grid
R45	270KΩ	½	RC-274-2	BTS-270K	Sound IF Amp. Grid
R46	68KΩ	½	RC-683-2	BTS-68K	Sound IF Amp. Screen
R47	15KΩ	½	RC-153-2		Sound IF Amp. Plate
R48	7500Ω	1	RC-752-5		Det.-Limiter Screen
R49	330Ω	½	RC-331-2	BTS-330	Isolation
R50	150Ω	1	RC-151-5	BTA-150	Output Cathode
R51	18KΩ	1	RC-183-5	BTA-18K	Output Screen
R52	470KΩ	½	RC-474-2	BTS-470K	Isolation
R53	1Meg	½	RC-105-2	BTS-1Meg	Sync Clipper Grid
R54	180KΩ	½	RC-184-2	BTS-180K	Sync Clipper Plate
R55	56KΩ	½	RC-563-2	BTS-56K	Voltage Divider
R56	1Meg	½	RC-105- 2	BTS-1Meg	Sync Phase Inverter Grid
R57	10KΩ	½	RC-103-2	BTS-10K	Sync Phase Inverter Grid
R58	1500Ω	½	RC-152-2	BTS-1500	Sync Phase Inverter Cathode
R59	12KΩ	2	RC-123-8	BTB-12K	Sync Phase Inverter Plate
R60	2200Ω	½	RC-222-2	BTS-2200	Sync Phase Inverter Plate
R61	100KΩ	½	RC-104-2	BTS-100K	Voltage Divider
R62A	22KΩ			BTS-22K	Integrator Network
B	8200Ω		♦CRP-3	BTS-8200	Integrator Network
C	8200Ω			BTS-8200	Integrator Network
R63	470KΩ	½	RC-474-2	BTS-470K	Vert. Osc. Grid
R64	220KΩ	½	RC-224-2	BTS-220K	Vert. Osc. Plate
R65	100KΩ 5%	½	RC-104-3	BTS-100K 5%	Vert. Feedback
R66	100KΩ 5%	½	RC-104-3	BTS-100K 5%	Voltage Divider
R67	10KΩ			BTS-10K	Vert. Peaking - See Note 4
R68	2.2Meg 5%	½	RC-225-3	BTS-2.2Meg 5%	Vert. Output Grid
R69	750Ω	½	RC-751-2		Vert. Output Cathode
R70	27KΩ	½	RC-273-2	BTS-27K	Horiz. Phase Det. Diode Load
R71	100KΩ	½	RC-104-2	BTS-100K	Horiz. Phase Det. Diode Load
R72	100KΩ	½	RC-104-2	BTS-100K	Horiz. Phase Det. Diode Load
R73	4.7Meg	½	RC-475-2	BTS-4.7Meg	Horiz. Phase Det. Diode Load
R74	18KΩ	2	RC-183-8	BTB-18K	Horiz. Feedback
R75	470KΩ	½	RC-474-2	BTS-470K	Horiz. AFC Filter
R76	4700Ω	½	RC-472-2	BTS-4700	Horiz. MV Plate
R77	2200Ω	½	RC-222-2	BTS-2200	Horiz. MV Cathode
R78	68KΩ	½	RC-683-2	BTS-68K	Horiz. MV Grid
R79	270KΩ	½	RC-274-2	BTS-470K	Horiz. MV Plate
R80	5600Ω	½	RC-562-2	BTS-5600	Horiz. Peaking
R81	18KΩ	1	RC-183-5	BTA-18K	Decoupling
R82	68Ω	½	RC-680-2		Parasitic Suppressor
R83	680KΩ	½	RC-684-2	BTS-680K	Horiz. Output Grid
R84	22Ω	½	RC-220-2	BW-½-22	Horiz. Output Cathode
R85	6200Ω	2	RC-622-8		Horiz. Output Screen
R86	3.3Ω	½	RC-33G-2		HV Rectifier Filament
R87	680KΩ	1	RC-684-5		HV Filter
R88	2200Ω	10	RW-222-17	1 3/4A-2250	Voltage Divider - Wire Wound
R89	470KΩ	½	RC-474-2	BTS-470K	Det. - Limiter Plate
R90	2000Ω	10	RW-202-17	1 3/4A-2000	Output Decoupling - Wire Wound
R91	150Ω 5%	½	RC-151-3	BTS-150 5%	Filament Dropping
R92	4.7Ω 5%	10	RW-47G-15		Surge Limiter - Wire Wound
R93	220KΩ	2	RC-224-8	BTB-220K	Line Isolation

Note 1. Some models use a 6800Ω resistor in this application.
Note 2. Some models use a 6200Ω resistor in this application.
Note 3. Some models use a 22KΩ resistor in this application.
Note 4. Some models use a 5600Ω or 8200Ω resistor in this application.
♦ Items R62A, R62B, R62C, C63A, C63B, C63C are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TELE KING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
T1	117VAC ④ .27A	⑥ 6.3VAC ⑥ 3.8A			T-122B T-122A ①	P-6466	P-2947	FO-63 ②	

① Alternate transformer
② Drill one new mtg. hole.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TELE KING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	410Ω Tap ④ 41Ω	23Ω Tap ④ 12Ω 17.7Ω SEC. 2 0Ω	T-124-B T-124-A ③	A-8130	HVO-7			Horiz. Output Trans.
T3	720Ω	14Ω	T-116 T-116-A ④	A-8113 ②	A-3038	TSO-2 ②	A-99X	Vert. Output Trans.
T4A	22Ω		DY-12-M	DY-9	MDF-70	TY-3	Y-17	Horiz. Deflection Coils
B	52Ω							Vert. Deflection Coils

② Drill one new mtg. hole.
③ Alternate horiz. output trans.
④ Alternate vert. output trans.

PARTS LIST CONTINUED ON PAGE 15

TELE KING MODELS K21, K72, K73L KC21, KC71, KD21M, KD22B, KD71, KD72B, (Ch. TVJ)

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		TELE KING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T5	4.3Ω	3.5Ω	295Ω	.65Ω	T-123	A-3877	A-2930	RO-302	S-3X	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	TELE KING PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.200A	66Ω	2 Hy.	LC-9	C-2325	C-2996	TR-1733 ②	C-17X

② Drill one new mtg. hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	TELE KING PART No.	MERIT PART No.	
L2	Ant. Trans.	0Ω	0Ω	TLA-4		
L3	Ant. Coils	0Ω		TRW-1		
L4	RF Choke	0Ω				Part of C12
L5	RF Coils	0Ω		TRW-1		
L6	Mixer Grid Coils	0Ω		TRW-1		
L7	Osc. Coils	0Ω		TOW-1		
L8	1st. Video IF	.4Ω		TLP-1		
L9	Fil. Choke	0Ω		LC-10		
L10	RF Choke	3Ω		LC-19		
L11	Fil. Choke	0Ω		LC-1		
L12	2nd. Video IF	.1Ω		LV-6	TV-102	
L13	Fil. Choke	0Ω		LC-1		
L14	3rd. Video IF	.2Ω	.2Ω	LV-7		
L15	4th. Video IF	.4Ω	.4Ω	LV-8		
L16	Peaking Coil	8.4Ω		LP-11	*TV-184	Wound on 10KΩ resistor -orange dot
L17	Peaking Coil	13.5Ω		LP-10		Purple dot
L18	Sound Take-Off Coil	2.9Ω	2.9Ω	LTO-3		
L19	Peaking Coil	8Ω		LP-13		Wound on 12KΩ resistor - white dot
L20	Peaking Coil	10Ω		LP-12-A	TV-188	Green and black dot - 450 microhenries
L21	4.5MC Sound IF	1.9Ω		LIF-11		
L22	4.5MC Quadrature Coil	22Ω		LIF-8-C		
L23	Horiz. Osc. Coil	50Ω		LHO-2-E		14.4 Microhenries - 60 Microhenries
L24	Width Coil	28Ω	28Ω	L-M77J4-3	MWC-1	
L25	Horiz. Lin.	27Ω		LM77J4	MWC-1	

* Parallel with 10KΩ resistor

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT	TELE KING PART No.	SYLVANIA PART No.	SELETRON PART No.	FEDERAL PART No.	MALLORY PART No.	
M1	.255A	SR-300		6Q4	1090A	6S300	
M2	.255A	SR-300		6Q4	1090A	6S300	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TELE KING PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3 AG Slo-Blo Pigtail	1½ A. 125 V.	FE-4		31501.5		MDV 1½	
M4	3 AG Pigtail	½ A. 250 V.	FE-5		318.500		GJV ½	

MISCELLANEOUS

ITEM No.	PART NAME	TELE KING PART No.	NOTES
M5	RF Tuning	TT-7	
M6	Crystal	1N64	1N64
M7A	Focus Magnet	LF-7	
B	Focus Magnet	LF-8	
M8A	Ion Trap	1T-1A	
B	Ion Trap	1T-5	
B2	Trimmer	CT-6	Horiz. Drive (28-280MMF) or (40-300MMF)

PHOTOFACT* Folder

TRUETONE
MODEL 2D2149A

DENVER, COLORADO

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MODEL 2D2149A

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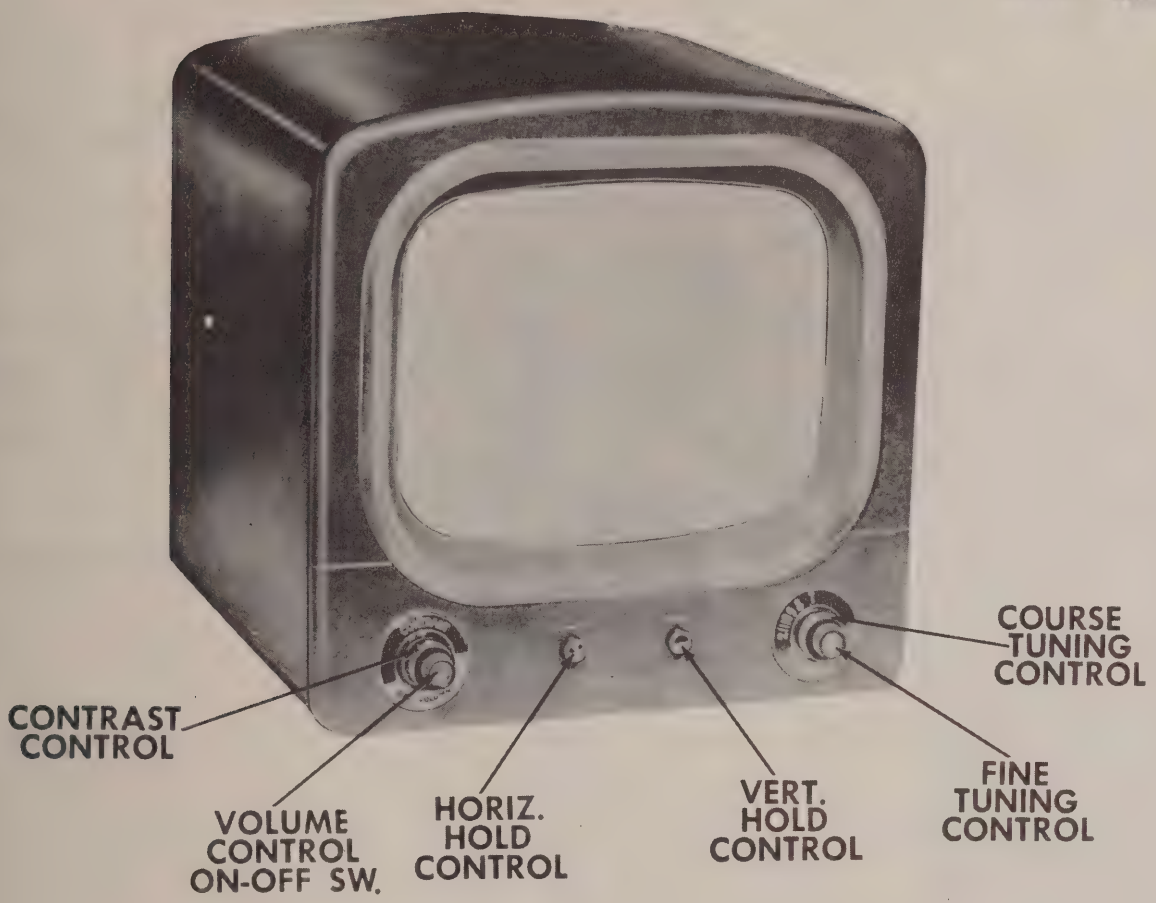
TRUETONE MODEL 2D2149A



TRUETONE MODEL 2D2149A

TRADE NAME	Truetone Model 2D2149A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Twenty-two
POWER SUPPLY	110-120 Volts AC-60 Cycle
RATING	1.8Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13 (continuous tuning)

INDEX

Alignment Instructions 6, 7
Disassembly Instructions 11
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions 12, 13, 14
Photographs
Cabinet - Rear View 11
Capacitor & Alignment Identification 4, 9
Photographs (Cont.)
Chassis - Top View 3
RF Tuner 10
Resistor and Inductor Identification 15, 16
Resistance Measurements 8
Schematic 2
Tube Placement Charts 5

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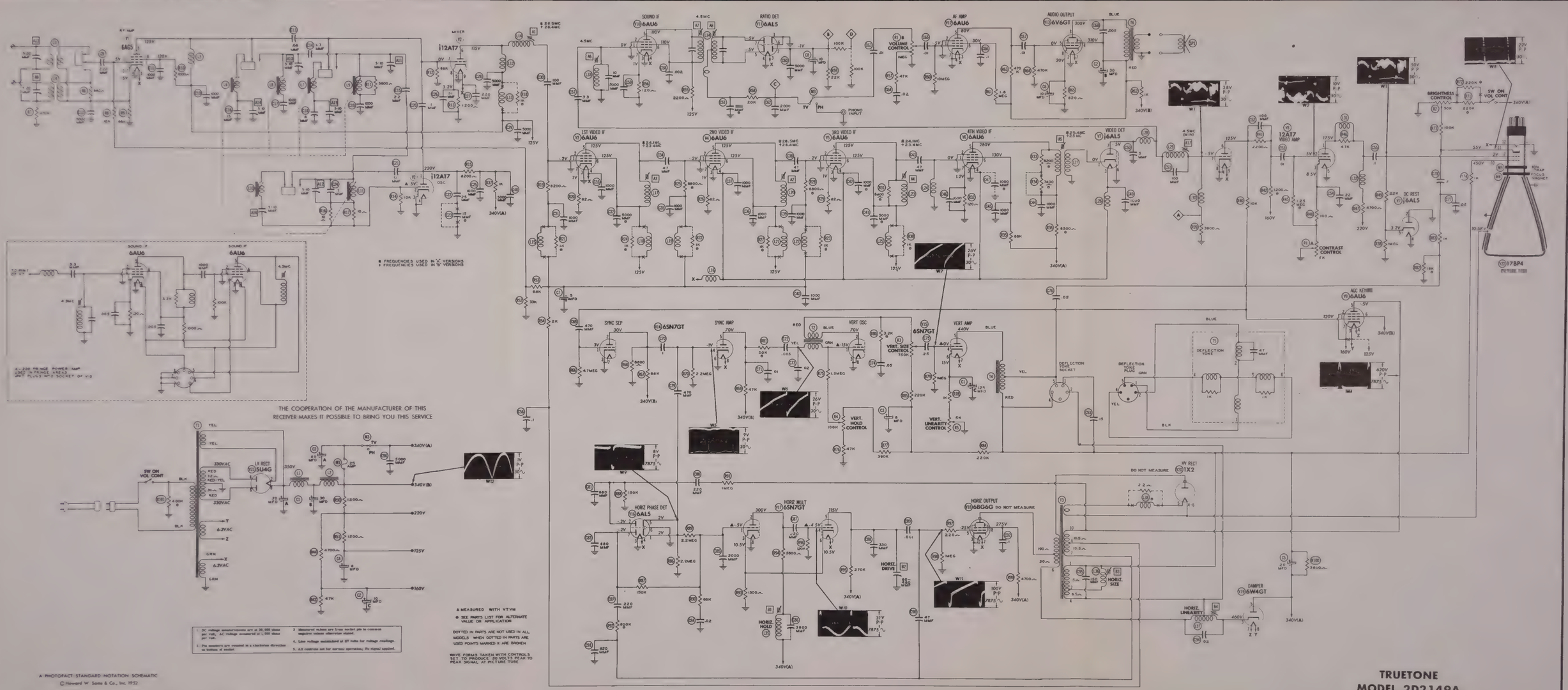
TRUETONE
MODEL 2D2149A
THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
FREQUENCIES USED IN 'X' VERSIONS
* FREQUENCIES USED IN 'S' VERSIONS
A MEASURED WITH VTVM
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DOTTED IN PARTS ARE NOT USED IN ALL MODELS WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 20 VOLTS PEAK TO PEAK SIGNAL AT PICTURE TUBE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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SOUND IF 6AU6
RATIO DET 6AL5
AF AMP 6AU6
AUDIO OUTPUT 6V6GT
1ST VIDEO IF 6AU6
2ND VIDEO IF 6AU6
3RD VIDEO IF 6AU6
4TH VIDEO IF 6AU6
VIDEO DET 6AL5
12AT7 VIDEO AMP
DC REST 6AL5
17BP4
SYNC SEP 6SN7GT
SYNC AMP
VERT OSC 6SN7GT
VERT AMP
AGC KEYING 6AU6
HORIZ PHASE DET 6AL5
HORIZ MULT 6SN7GT
HORIZ OUTPUT 6BG6G
DAMPER 6W4GT
HV RECT 1X2
LV RECT 5U4G
SW ON VOL CONT
BRIGHTNESS CONTROL
CONTRAST CONTROL
VOLUME CONTROL
VERT. SIZE CONTROL
VERT. HOLD CONTROL
VERT. LINEARITY CONTROL
HORIZ. DRIVE
HORIZ. SIZE
HORIZ. LINEARITY
DEFLECTION YOKE
DEFLECTION YOKE SOCKET
DEFLECTION YOKE PLUG
PHONO INPUT
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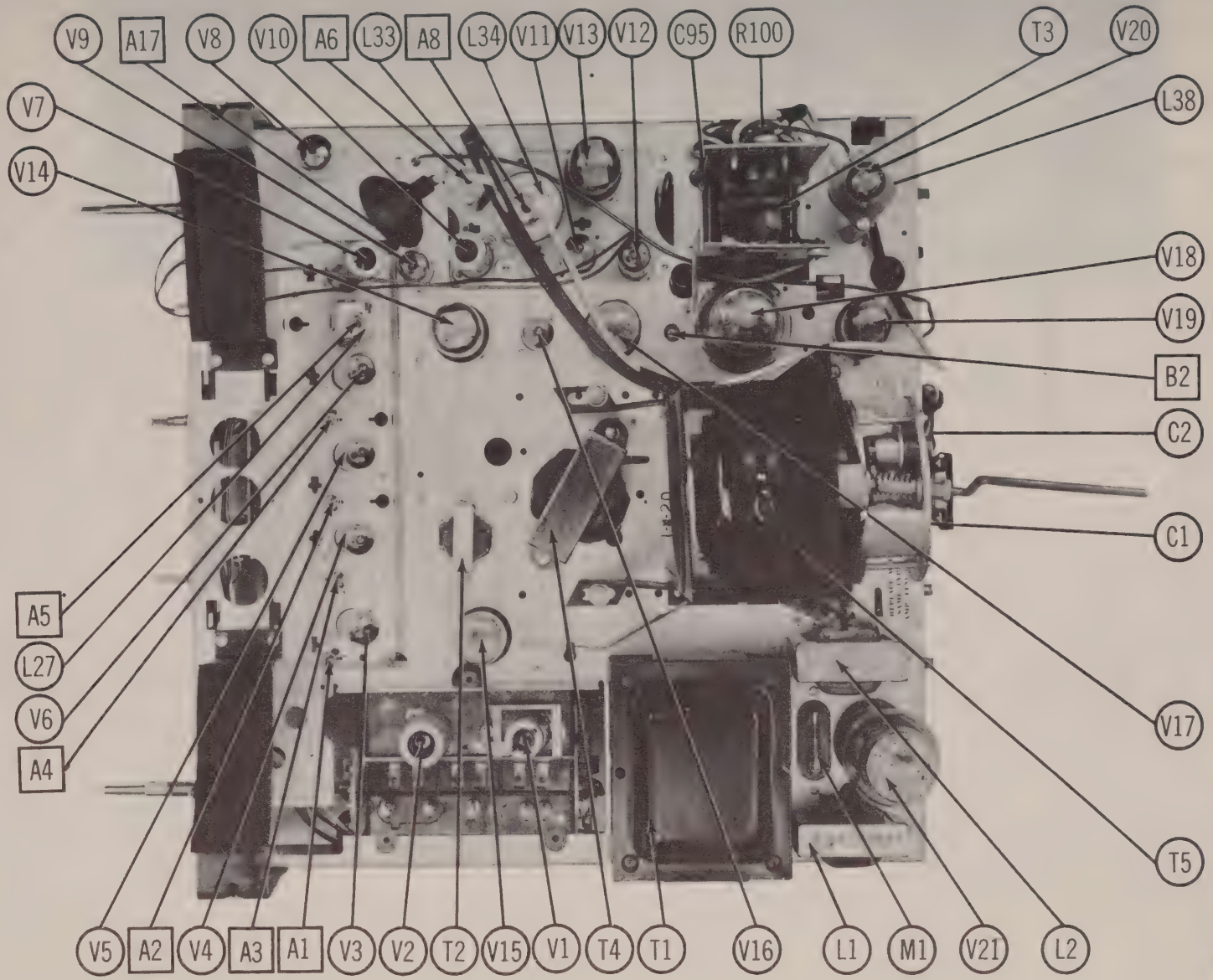

CHASSIS TOP VIEW

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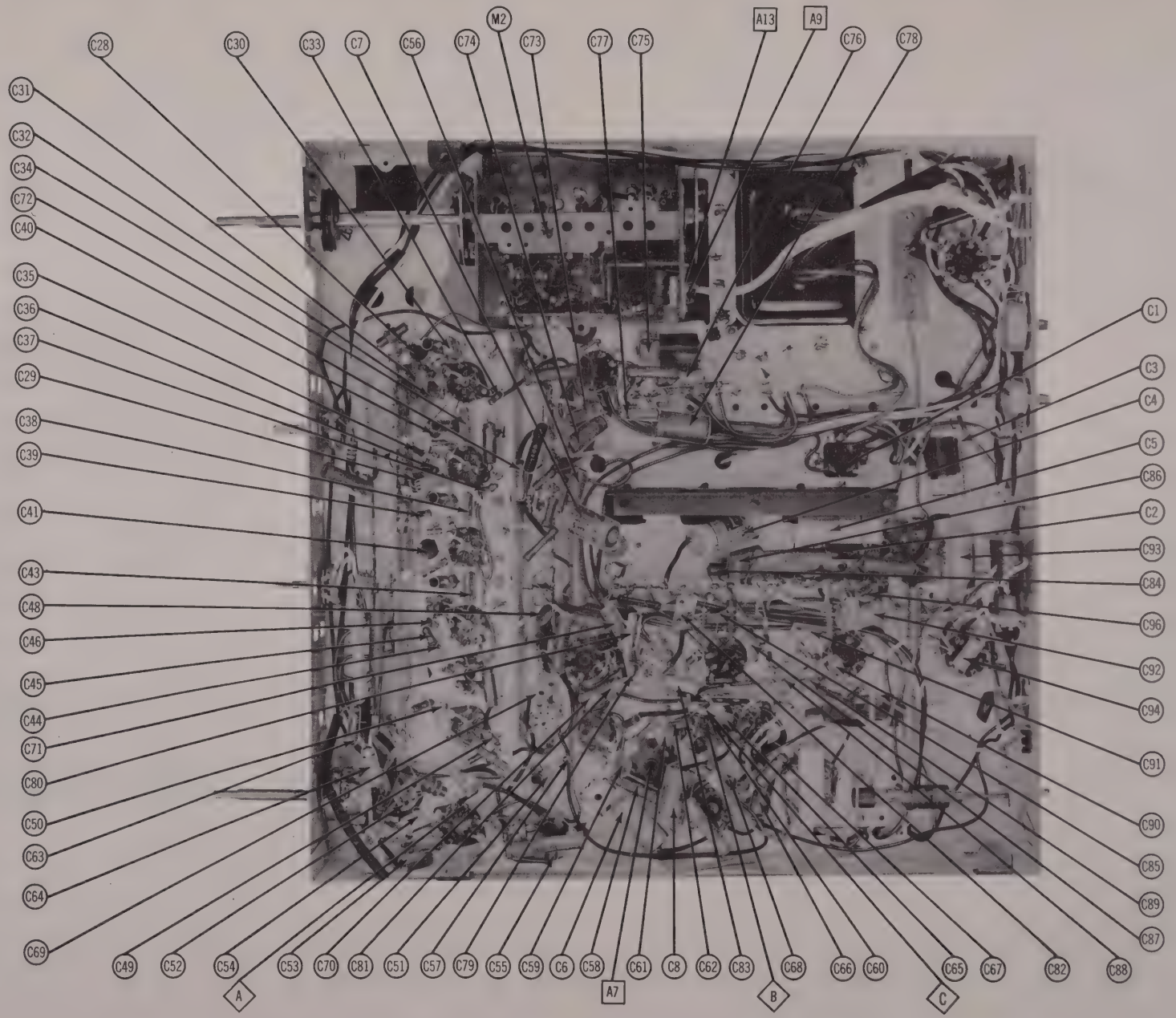


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

DENVER, COLORADO

TUBE PLACEMENT CHART

TRUETONE
MODEL 2D2149A

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The end of the high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.

VIDEO IF ALIGNMENT

The sets with model numbers ending in "A" have a different alignment than the sets with numbers ending in "B". Both alignments are given in the table. The alignment frequencies for the "A" versions will be indicated by an osterisk (*), the frequencies for the "B"versions will be indicated by a dagger (†).
Tune to a channel which causes no interference. To check for interference turn the tuning control slightly, if the VTVM reading changes tune to another position.
Turn the contrast control to maximum clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over converter tube, (V2). Low side to chassis.	* 26.5MC †26.4MC (unmod.)	See note above.	DC probe to Point (A). Common to chassis.	A1, A2	Adjust for maximum deflection. Attenuate signal gen. to maintain 1 volt reading.
2.	"	"	* 24.1MC †23.4MC	"	"	A3, A4,	"
3.	"	"	*25.4MC †25MC	"	"	A5	"

OVERALL VIDEO IF RESPONSE CHECK

See note under Video IF alignment concerning A & B version models.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
Tune to a position which causes no interference. To check for interferebce turn the tuning control slightly, if the response curve changes tune to another position.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to an ungrounded tube shield floating over converter tube, (V2). Low side to chassis.	25MC (10MC swp.)	* 23.75MC † 23 MC *† 26.75MC	See note	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A5 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (B) to chassis. The junction of these two resistors is alignment Point (D) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (unmod.)	Any channel not used locally.	DC probe to Point (B). Common to chassis.	A6, A7	Adjust for maximum deflection.
6.	"	"	"	"	DC probe to Point (C). Common to Point (D).	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
Short antenna terminals.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to Point (A). Low side to chassis.	4.5MC (450KC swp.)	4.5MC	Any channel not used locally.	Vert. amp. to Point (B). Low side to chassis.	A6, A7	Disconnect stabilizor capacitor C8. Adjust for maximum amplitude and symmetry as per Fig. 2.
6.	"	"	"	"	"	Vert. amp. to Point (C). Common to chassis.	A8	Reconnect capacitor C8. Adjust A8 so 4.5MC occurs at center of crossover lines as per Fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

TUNER ALIGNMENT

Pre-set the trimmer screws as shown in Fig. 5. Turn the core carriage bar to the extreme top of its stroke with the band switch in low band position.
Adjust all cores so that the cores extend to 1.6 inches above the coil mounting clip.
Turn the low band oscillator coil, (L11), core an additional 4 turns out of the coil.
It should be noted that the RF response curve for sets having model numbers ending in "A" has a different shape than the curves for the "B" versions.
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

LOW BAND ALIGNMENT

If trimmer A10 reaches maximum capacity and more capacity is needed, turn the core of L8 into the coil.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	85MC (10MC swp.)	83.25MC 87.75MC	6	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.	A9, A10 A11	Adjust for maximum amplitude of response.
8.	"	"	"	"	"	"	A12	Adjust to place video markers at 50% on response curve as shown in Fig. 4.
9.	"	"	63MC (10MC swp.)	61.25MC 65.75MC	3	"		Adjust tuning control to place video marker at 50% on response curve for each channel. If necessary retouch A10 and A11 for compromise which gives best overall response across the low band channels.
			69MC (10MC swp.)	67.25MC 71.75MC	4			
			79MC (10MC swp.)	77.25MC 81.75MC	5			
			57MC (10MC swp.)	55.25MC 59.75MC	2			

ALIGNMENT INSTRUCTIONS (CONT.)

HIGH BAND ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC swp.)	211.25MC 215.75MC	13	Vert. amp. thru 10KΩ to Point (A). Low side to chassis.	A13, A14, A15	Adjust for maximum amplitude of response.
11.	"	"	"	"	"	"	A16	Adjust to place video marker at 50% on response curve as shown in Fig. 4.
12.	"	"	207MC (10MC swp.)	205.25MC 209.75MC	12	"		Adjust tuning control until video marker appears at 50% on response curve on each channel. If necessary retouch A14 & A15 for compromise which gives best overall response across the high band channels.
			201MC (10MC swp.)	199.25MC 203.75MC	11			
			195MC (10MC swp.)	193.25MC 197.75MC	10			
			189MC (10MC swp.)	187.25MC 191.75MC	9			
			183MC (10MC swp.)	181.25MC 185.75MC	8			
			177MC (10MC swp.)	175.25MC 179.75MC	7			

4.5MC TRAP ADJUSTMENT

After alignment is completed and set restored to original operation connect an antenna and tune in a strong station. Adjust the tuning control until sound bars just begin to appear in the picture.
Adjust the trap core, (A17), until any evidence of 4.5MC interference (grain appearance in horizontal lines) is eliminated.

3924 MEADE ST.
DENVER, COLORADO

FIG.1A

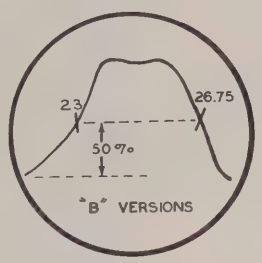


FIG.1B

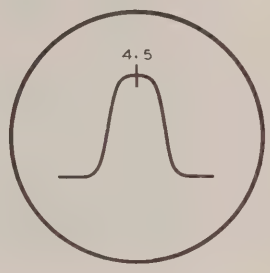


FIG. 2

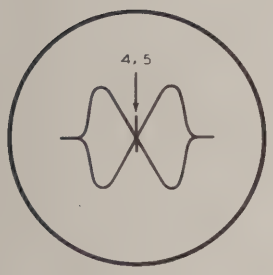


FIG. 3

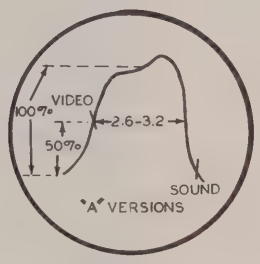


FIG.4A

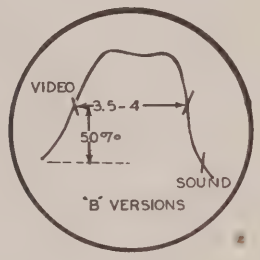


FIG.4B

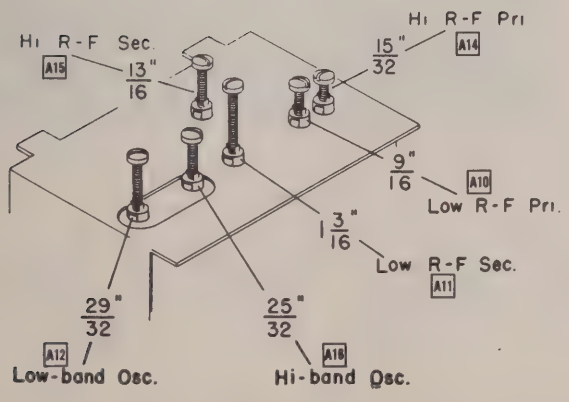


FIG. 5

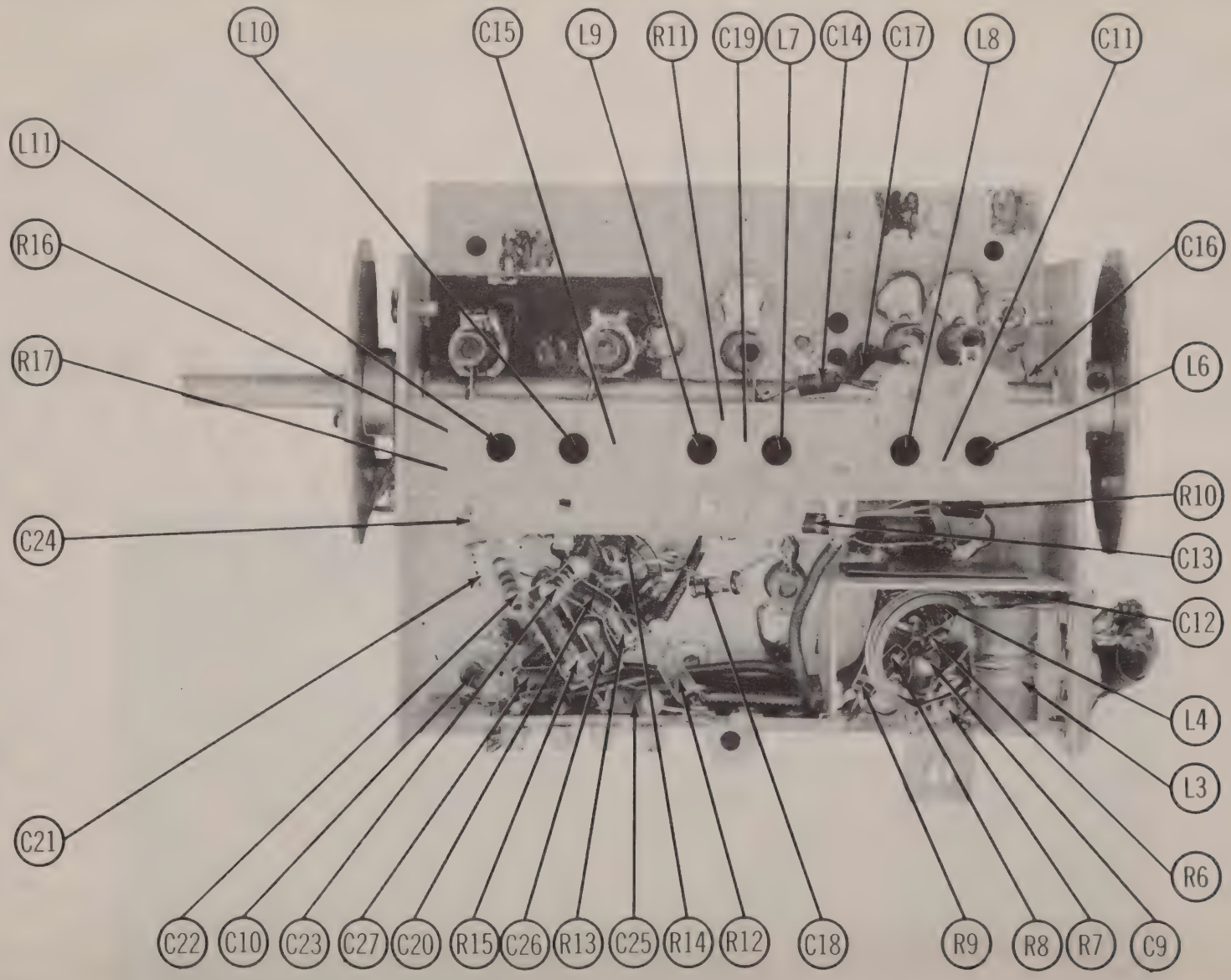
ALIGNING TRIMMERS

The dimensions shown are approx. from the shoulder of screw head to mounting base

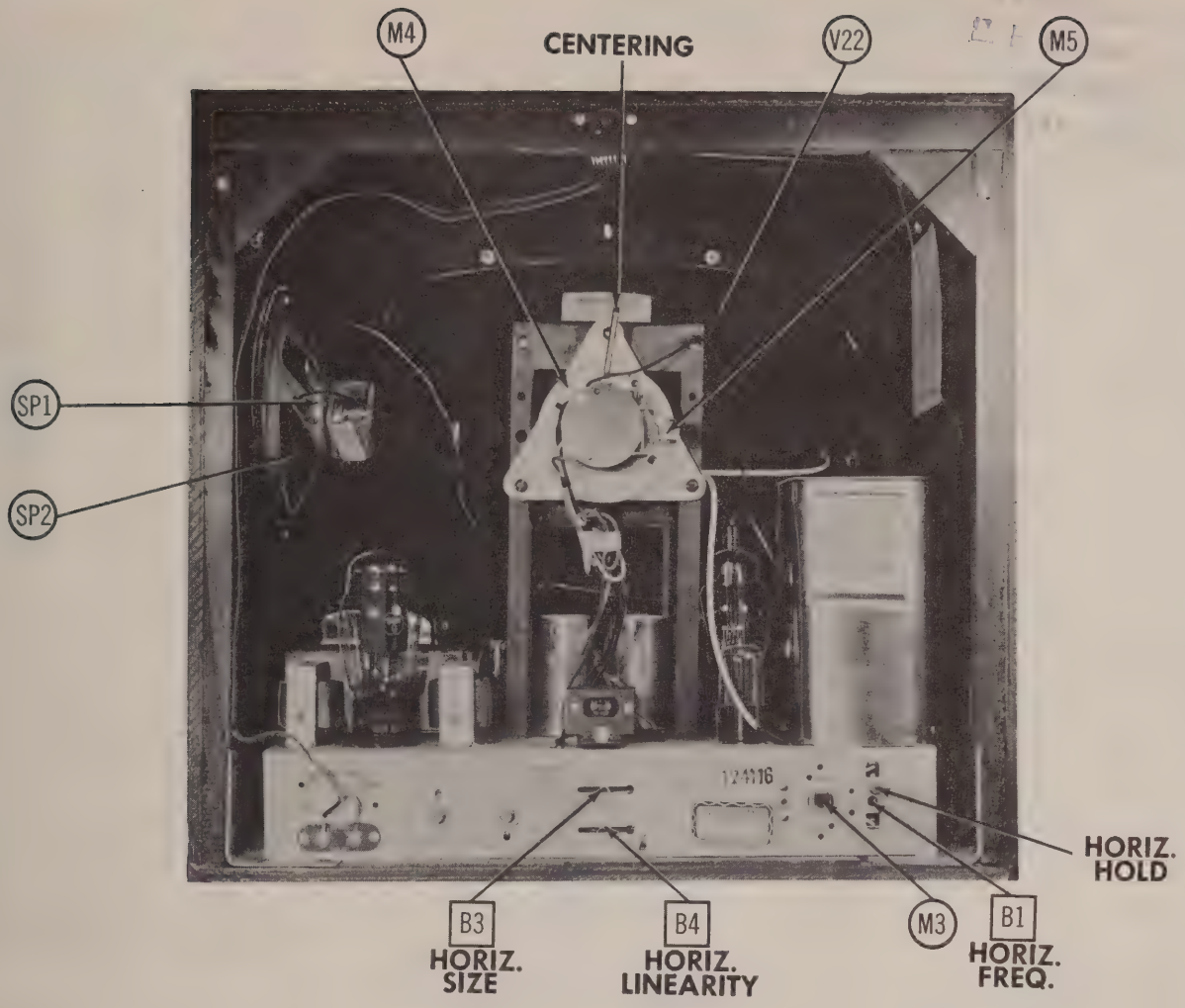
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	43KΩ	68Ω	.1Ω	0Ω	†2.8KΩ	†3.8KΩ	68Ω		
V 2	12AT7	†9.3KΩ	10KΩ	0Ω	0Ω	0Ω	†2.8KΩ	68KΩ	1.2KΩ	.1Ω
V 3	6AU6	90KΩ	0Ω	0Ω	.1Ω	†2.8KΩ	†2.8KΩ	82Ω		
V 4	6AU6	90KΩ	0Ω	0Ω	.1Ω	†2.8KΩ	†2.8KΩ	82Ω		
V 5	6AU6	90KΩ	0Ω	0Ω	.1Ω	†2.8KΩ	†2.8KΩ	82Ω		
V 6	6AU6	2.3Ω	0Ω	0Ω	.1Ω	†6.6KΩ	†68KΩ	120Ω		
V 7	6AL5	.8Ω	0Ω	.2Ω	0Ω	1Meg	0Ω	3.9KΩ		
V 8	12AT7	†6.3KΩ	1.2Meg	800Ω	0Ω	0Ω	†8KΩ	3.9KΩ	0Ω	.1Ω
V 9	6AU6	†19KΩ	†6.3KΩ	¶0Ω	¶.1Ω	90KΩ	†60Ω	†6.3KΩ		
V 10	6AU6	3.1Ω	0Ω	0Ω	.1Ω	†5KΩ	†5KΩ	120Ω		
V 11	6AL5	0Ω	22KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 12	6AU6	10Meg	0Ω	.1Ω	0Ω	†470KΩ	†1.8Meg	0Ω		
V 13	6V6GT	0Ω	0Ω	†1.5KΩ	†1.1KΩ	470KΩ	†60Ω	.1Ω	820Ω	
V 14	6SN7GT	4.7Meg	6.1KΩ	0Ω	2.2Meg	†47KΩ	0Ω	0Ω	.1Ω	
V 15	6SN7GT	1.6Meg	#1.1Meg	0Ω	1Meg	#725Ω	1.3KΩ	.1Ω	0Ω	
V 16	6AL5	2.2Meg	150KΩ	0Ω	.1Ω	2.2Meg	0Ω	4.5Meg		
V 17	6SN7GT	4.4Meg	†5.7KΩ	1.5KΩ	120KΩ	†270KΩ	1.5KΩ	.1Ω	0Ω	
V 18	6BG6G	INF	0Ω	0Ω	1Meg	1Meg	90KΩ	.1Ω	†4.8KΩ	Top Cap #37Ω
V 19	6W4GT	INF	INF	†3.7KΩ	#9Ω	†75Ω	#6Ω	¶.1Ω	¶0Ω	
V 20	1X2	PINS 1 - 9 HAVE IN RESISTANCE								Top Cap #220Ω
V 21	5U4G	INF	25KΩ	INF	32Ω	400KΩ	30Ω	400KΩ	25KΩ	
V 22	17BP4	0Ω	1Meg	Pin 10 #1KΩ	Pin 11 125KΩ	Pin 12 .1Ω				

ALL CONTROLS SET FOR NORMAL OPERATION, NO SIGNAL APPLIED
† MEASURED FROM PIN 8 OF V21
# MEASURED FROM PIN 3 OF V19
¶ MEASURED FROM 160 VDC LINE



RF TUNER-BOTTOM VIEW



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Turn the horizontal hold thumbscrew fully clockwise and then 2 full turns counter-clockwise.

Adjust the horizontal frequency slug, (B1), to the center of the range over which the picture synchronizes horizontally. Any subsequent adjustments of the horizontal frequency should be made with the horizontal hold thumbscrew.

Adjust the horizontal drive trimmer, (B2), counter-clockwise as far as possible without crowding or bright vertical lines appearing in the picture.

Adjust the horizontal slug, (B3), until the picture is slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal linearity slug, (B4), until the picture is symmetrical from left right.

Since both horizontal size and linearity are effected by the drive trimmer it may be necessary to adjust them alternately for best results.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 screws from back cover. Remove cover.
2. Remove 5 push-on type control knobs.
3. Disconnect speaker, picture tube and built-in antenna.
4. Remove speaker mounting nuts. Remove speaker.

Note: For picture tube removal it is necessary to remove chassis as outlined above.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AG5	6AG5	7BD	
V2	Converter	12AT7	12AT7	9A	
V3	1st Video IF Amp.	6AU6	6AU6	7BK	
V4	2nd Video IF Amp.	6AU6	6AU6	7BK	
V5	3rd Video IF Amp.	6AU6	6AU6	7BK	
V6	4th Video IF Amp.	6AU6	6AU6	7BK	
V7	Video Det.-DC Rest	6AL5	6AL5	6BT	
V8	Video Amp.	12AT7	12AT7	9A	
V9	Keyed AGC	6AU6	6AU6	7BK	
V10	Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Det.	6AL5	6AL5	6BT	
V12	AF Amp.	6AU6	6AU6	7BK	
V13	Audio Output	6V6GT	6V6GT	7AC	
V14	Sync. Sep. -Sync. Amp	6SN7GT	6SN7GT	8BD	
V15	Vert. Osc. -Vert. Amp.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Phase Det.	6AL5	6AL5	6BT	
V17	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V18	Horiz. Output	6BG6G	6BG6G	5BT	
V19	Damper	6W4GT	6W4GT	4CG	
V20	HV Rect.	1X2	1X2	9Y	
V21	LV Rect.	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: SYLVANIA PART No.	REPLACEMENT DATA:	RTMA BASE TYPE	NOTES
V22	17BP4	17BP4A		12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	30	450	8C-18487	AFH4-82		UPT409			TVL-2759	■
B	30	450							TVA-1207	▲
C	125	25								▲
C2A	80	450	8C-17845	AFH3-40		UPT36145			TVL-3790	
B	30	450								
C	10	450								
C3	8	450	8C-13453	PRS450/8		BR845A		TC71	TVA-1704	
C4	8	450	8C-13453	PRS450/8		BR845A		TC71	TVA-1704	
C5	20	150	8C-19546	PRS150/20		BR2015A		TC45	TVA-1410	
C6	10	50	8C-17183	PRS50/10		BR105		TC32	TVA-1304	
C7	5	50	8C-17424	PRS150/4		BR550		TC30	TVA-1303	
C8	10	75	8C-19564	PRS150/12		BR1015		TC42	TVA-1406	
C9	220		8G-18045	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C10	1000		8G-13201	SI1000	D6-102		GP2L-102	UC-521	5HK-D1	
C11	1000		8G-13201	SI1000	D6-102		GP2L-102	UC-521	5HK-D1	
C12	5000		8G-13962	BPD-005	DD-502		811-005	DC-525	5HK-D5	
C13	.68		8G-12495-1		TCZ-.68		NP0K-R68			
C14	1.5		8G-12495-8	SI.5NP0	TCZ-1.5		NP0K-1R5	ZT-5515		
C15	2.2		8G-12495-4		TCZ-2.2		NP0K-2R2			
C16	15		8G-13017		TCZ-15		NP0K-150		5TCC-Q15	
C17	1000		8G-13201	SI1000	D6-102		GP2L-102	UC-521	5HK-D1	
C18	4		8G-19314				NP0K-040			
C19	1000		8G-13201	SI1000	D6-102		GP2L-102	UC-521	5HK-D1	
C20	1		8G-12495-2		TCZ-1		NP0K-010			
C21	51		8G-11891		TCN-51		N750L-510			
C22	2.5		8G-19568							
C23	15		8G-13017		TCZ-15		NP0K-150		5TCC-Q15	Note 1
C24	7		8G-19572				N470K-070			
C25	1000		8G-13201	SI1000	D6-102		GP2L-102	UC-521	5HK-D1	
C26	51		8G-11891		TCN-51		N750L-510			
C27	220		8G-18045	SI220	D6-221		GP2K-221	UC-5322	5GA-T22	
C28	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	
C29	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	
C30	100	500	8F3-8	1468-0001	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C31	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C32	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	Note 2
C33	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C34	47	500	8F3-109	1468-00005	D6-470	5W5Q5	GP1K-470	MC225	1FM-45	
C35	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C36	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C37	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C38	47	500	8F3-109	1468-00005	D6-470	5 W5Q5	GP1K-470	MC 225	1FM-45	
C39	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C40	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C41	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	Note 2
C42	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	Note 1
C43	47	500	8F3-109	1468-00005	D6-470	5W5Q5	GP1K-470	MC225	1FM-45	
C44	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C45	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C46	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	
C47	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D1	Note 1
C48	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	
C49	1000		8G-13201	SI1000	D6-102	1W5D1	GP2L-102	UC-521	5HK-D5	
C50	5		8G-12186	SI5NP0	TCZ-4.7		NP0K-050	ZT-541		
C51	100	500		1469-0001		5R5T1		MCB235	MS-31	
C52	100	500	8F1-113	1468-0001	D6-101	5W5T1	GP1K-101	MCB235	1FM-31	
C53	.01	400	8D-17270	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C54	22		8G-11892		TCN-32		N750K-220		5TCU-Q22	
C55	.1	500	8D-17590	P288-1	DF-104	PTE6P1		PT601	6TM-P1	
C56	.1	200	8D-17259	P288-1	DF-104	PTE4P1		PT401	2TM-P1	
C57	3.3			SI3.3NP0	TCZ-3.3		NP0K-3R3	ZT-5533		
C58	.002	600	8D-15638	P688-002	D6-202	PTE6D2	GP2-333-202	PT622	6TM-D2	
C59	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	
C60	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	
C61	560	500			D6-561	1W5T6	GP2K-561	UC-5356	MS-36	Note 3
C62	2000		8G-19522	SI2000	D6-203	1W5D2	GP2-333-202	UC-522	5HK-D2	

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C63	.01	200	8D-17258	P288-01	D6-103	PTE4S1	GP2-333-103	PT411	2TM-S1	
C64	.02	200	8D-17268	P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C65	.01	200	8D-17270	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C66	.1	400	8D-17590	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C67	.01	400	8D-17270	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C68	.005	600	8D-19258	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C69	470	500	8F3-121	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C70	.1	200	8D-17259	P288-1	DF-104	PTE4P1		PT401	2TM-P1	
C71	.01	400	8D-17270	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C72	.005	600	8D-17608	P488-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C73	.02	200	8D-17268	P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C74	.05	400	8D-14461	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C75	.25	400	8D-17784	P488-25		GT4-P25		PT4025	4TM-P25	
C76	.05	400	8D-14461	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C77	.02	200	8D-17268	P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C78	.1	600	8D-18861	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C79	470	500	8F3-121	1468-0005	D6-471	5W5T5	GP2K-471	MC245	1FM-35	
C80	220	500	8F3-117	1469-00025		5R5T25		MCB240		
C81	680	500	8F3-123	1479-0007		2R5T7			MS-37	
C82	220	500	8F3-117	1469-00025		5R5T25		MCB240		
C83	680	500	8F3-123	1479-0007		2R5T7			MS-37	
C84	.02	300	8D-17268	P288-02	DF-203	PTE4S2		PT412	2TM-S2	
C85	2000		8G-16049	SI2000	D6-202	1W5D2	GP2-333-202	UC-522	5HK-D2	
C86	3900	500	8F11-132	1464-004		1DR5D4		MCB463		
C87	220	500	8F3-117	1469-00025		5R5T25		MCB240		
C88	330	500	8F3-119	1469-00035						
C89	.001	600	8D-19193	P688-001	D6-102	PTE6D1	GP2L-102	PT621	6TM-D1	
C90	47		8G-12198	SI47N750	TCN-47		N750K-470	NT-5447	5TCU-Q47	
C91	820	500	8F3-124							
C92	.1	600	8D-18861	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C93	.15	200	8D-15667	P288-15	DF-154			TP417	2TM-D15	
C94	.02	300	8D-17268	P488-02	DF-203	PTE4S2		PT412	2TM-S2	
C95	150	1500	8G-19498					MCK315		
C96	5000		8G-13962	BPD-005	DD-502	1D5D5	811-005	DC-525	5HK-D5	

Note 1. Not used in all models.
Note 2. Some models use 1000MMF in this application (Part #8G-13201)
Note 3. Some models use 820MMF in this application (Part #8F3-124)

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	5000Ω	½	10A-18441	QJ-28*	RTV-218	SBBT-617-S	UF53R	Contrast-Panel
B	1Meg	½					UR16-T1253	Volume-Tapped @ 100KΩ-Rear
C	Switch						US-26	Attach to R1B
R2A	5000Ω	½	10B-19218	QII-114	AM-19-S	AB-10	SU-14	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R2A
R3A	50KΩ	½	10B-17764	QII-123	AG-44-S	AB-31	U-35	Brightness
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A
R4A	100KΩ	½	10B-17275	QII-128	AG-49-S	AB-40	U-41	Vert. Hold
B	Shaft		Not Req.	Not Req.	KSS-3	AK-1	Not Req.	Attach to R4A
R5A	750KΩ	½	10B-19220	QII-136	AG-61-S		U-51	Vert. Size
B	Shaft		Not Req.	Not Req.	FKS-1/4		Not Req.	Attach to R5A

* CONCENTRIKIT EQUIVALENT - KIT K-2, BASE ELEMENTS & SHAFTS B17-114 & P1-200 (Panel) B18-137X & R2-218 (Rear) & SWITCH 76-1.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES (ALL RESISTORS ± 20% UNLESS OTHERWISE NOTED)
R6	680Ω 10%	½	9B1-60	BTS-680	Antenna Coil Shunt
R7	470KΩ	½		BTS-470K	Antenna Isolation
R8	10KΩ 10%	½	9B1-74		AGC Network
R9	86Ω 10%	½	9B1-48		RF Amp. Cathode
R10	100Ω	½	9B1-13	BTS-1000	RF Amp. Coil Shunt
R11	5600Ω 10%	½	9B1-71	BTS-5600	Mixer Grid Coil Shunt
R12	68KΩ	½	9B1-84		Mixer Grid Coil Shunt
R13	1200Ω 10%	½	9B1-63	BTS-1200	Mixer Cathode
R14	10KΩ 10%	½	9B1-74		Osc Grid
R15	8200Ω 10%	1	9B2-73		Osc. Plate
R16	10Ω 10%	½	9B1-38		Parasitic Suppressor
R17	10Ω 10%	½	9B1-38		Parasitic Suppressor
R18	1000Ω	½	9B1-13	BTS-1000	Decoupling See note 1.
R19	82000Ω 10%	½	9B1-73	BTS-8200	1st Video Amp. Grid
R20	82Ω 10%	½	9B1-49	BTS-82	1st Video Amp. Cathode
R21	1000Ω	½	9B1-13	BTS-1000	AGC Network See note 1.
R22	1000Ω	½	9B1-13	BTS-1000	AGC Network See note 1.
R23	1000Ω	½	9B1-13	BTS-1000	AGC Network See note 1.
R24	1000Ω	½	9B1-13	BTS-1000	1st Video IF Amp. Decoupling See note 1.
R25	68000Ω 10%	½	9B1-72		2nd Video IF Amp. Grid
R26	82Ω 10%	½	9B1-49	BTS-82	2nd Video IF Amp. Ca thode
R27	1000Ω	½	9B1-13	BTS-1000	2nd Video IF Amp. Decoupling See note 1.
R28	68000Ω 10%	½	9B1-72		3rd Video IF Amp. Grid
R29	82Ω 10%	½	9B1-49	BTS-82	3rd Video IF Amp. Cathode
R30	1000Ω	½	9B1-13	BTS-1000	3rd Video IF Amp. Decoupling See note 1
R31	68000Ω 10%	½	9B1-72		3rd Video IF Amp. Coil Shunt
R32	120Ω 10%	½	9B1-51	BTS-120	4th Video IF Amp. Cathode
R33	82000Ω	½	9B1-75		4th Video IF Amp. Coil Shunt See notes 2
R34	74000Ω	½			4th Video IF Amp. Coil Shunt See note 3
R35	68KΩ 10%	1	9B2-84	BTA-68K	4th Video IF Amp. Screen
R36	6500Ω	½	9B1-71		4th Video IF Amp. Plate Decoupling See note 4.
R37	1000Ω 10%	½	9B1-62	BTS-1000	Decoupling
R38	1Meg 10%	½	9B1-96		DC Restorer Cathode
R39	3900Ω	½	9B1-69	BTS-3900	Video Det. Diode Load
R40	10KΩ	½	9B1-74	BTS-10K	Isolation
R41	2200Ω 10%	½	9B1-66	BTS-2200	Video Amp. Plate
R42	1200Ω	1	9B1-62	BTA-1200	Video Amp. Plate See note 5.
R43	47KΩ	2	9B4-82	BTB-47K	Voltage Divider
R44	4700Ω	1	9B2-70	BTA-4700	Voltage Divider
R45	1.25Meg	½	9B1-102		Video Amp. Grid See note 6.
R46	47KΩ	1	9B1-82	BTA-47K	Video Amp. Coil Shunt
R47	4700Ω	2	9B4-70	BTB-4700	Video Amp. Plate
R48	100Ω	½	9B1-50	BTS-100	Video Amp. Cathode
R49	22KΩ	1	9B1-78	BTS-22K	Picture Tube Grid

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
R50	1200Ω	10	9M-19995	1 3/4A-1200	Voltage Divider - Wire Wound
R51	1500Ω	10	9M-19995	1 3/4A-1500	Voltage Divider - Wire Wound
R52	33KΩ	½	9B1-80	BTS-33K	AGC Network
R53	68KΩ 10%	½	9B1-84	BTS-68K	AGC Network
R54	2KΩ	½	9B1-66	BTS-2K	AGC Network See note 7
R55	2200Ω	½	9B1-66	BTS-2200	Sound IF Amp. Decoupling
R56	120Ω	½	9B1-51	BTS-120	Sound IF Amp. Cathode
R57	47KΩ	½	9B1-82		Tone Compensation
R58	20KΩ 5%	½	9B1-78		De-emphasis See note 8.
R59	22KΩ	½	9B1-78	BTS-22K	Ratio Det. Diode Load
R60	10Meg	½	9B1-37	BTS-10Meg	Audio Amp. Grid
R61	1.8Meg	½	9B1-101	BTS-1.8Meg	Audio Amp. Screen
R62	1000Ω	1	9B4-62	BTA-1000	Audio Amp. Screen Decoupling
R63	470KΩ	½	9B1-29	BTS-470K	Audio Amp. Plate
R64	470KΩ	½	9B1-29	BTS-470K	Audio Output Grid
R65	820Ω	1	9B2-61	BTA-820	Audio Output Cathode
R66	4.7Meg 10%	½	9B1-106	BTS-4.7Meg	Sync. Separator Grid
R67	68KΩ	2	9B4-84	BTB-68K	Sync. Separator Plate
R68	68000Ω	½	9B1-72	BTS-6800	Sync. Separator Plate
R69	47KΩ	2	9B4-82	BTB-47K	Sync. Amp. Plate
R70	2.2Meg	½	9B1-102	BTS-2.2Meg	Sync. Amp. Cathode
R71	220KΩ	½	9B2-62	BTS-220K	Voltage Divider See note 9.
R72	220KΩ	½		BTS-220K	Voltage Divider See note 3.
R73	100KΩ 10%	½	9B1-86	BTS-100K	Picture Tube Cathode
R74	1000Ω	½	9B1-62	BTS-1000	Picture Tube Screen
R75	1.5Meg	½	9B1-100	BTS-1.5Meg	Vert. Osc. Grid
R76	47KΩ	½	9B1-82	BTS-47K	Voltage Divider
R77	390KΩ 10%	1	9B1-93	BTA-390K	Voltage Divider
R78	1000Ω 10%	½	9B1-62	BTS-1000	Vert. Amp. Cathode
R79	1Meg	½	9B1-98	BTS-1Meg	Vert. Amp. Grid
R80	3.2KΩ	½	9B1-68		Vert. Peaking See note 10.
R81	50KΩ 5%	½	9B1-82		Integrator Network See note 11
R82	16KΩ	½	9B1-76		Vert. Blanking Network See note 12.
R83	1000Ω 10%	½	9B1-62	BTS-1000	Vert. Blanking Network
R84	220KΩ	½	9B1-90	BTS-220K	Decoupling
R85	220KΩ	½	9B1-90	BTS-220K	Vert. Osc. Plate
R86	2.2Meg	½	9B1-102	BTS-2.2Meg	Phase Inverter Diode Load
R87	150KΩ	½	9B1-88	BTS-150K	Phase Inverter Diode Load
R88	150KΩ	½	9B1-88	BTS-150K	Phase Inverter Diode Load
R89	2.2Meg	½	9B1-102	BTS-2.2Meg	AFC Filter
R90	68KΩ 10%	½	9B1-84	BTS-68K	AFC Filter
R91	1Meg	½	9B1-98	BTS-1Meg	AFC Feedback
R92	600KΩ	½	9B1-96	BTS-390K	AFC Feedback See note 13
R93	1500Ω	½	9B1-64	BTS-1500	Horiz. MV Cathode
R94	5600Ω 10%	1	9B2-71	BTA-5600	Horiz. MV Plate
R95	270KΩ 10%	½	9B1-91	BTS-270K	Horiz. MV Plate
R96	120KΩ 10%	1	9B1-87	BTA-120K	Horiz. MV Grid
R97	220Ω	½	9B1-54		Parasitic Suppressor
R98	1Meg 10%	½	9B1-98	BTS-1Meg	Horiz. Output Grid
R99	4700Ω 10%	1	9B2-70	BTA-4700	Horiz. Output Screen
R100	3600Ω	1	9C13-2061	1 3/4A-3500	Voltage Divider - Wire Wound
R101	400KΩ	½	9B1-94		Isolation See note 14

Note 1. Some models use RF chokes in this application.
Note 2. Some models use a 12KΩ resistor in this application.
Note 3. Not used in all models.
Note 4. Some models use a 5800Ω resistor in this application.
Note 5. Some models use a 1000Ω resistor in this application.
Note 6. Some models use a 2.2Meg resistor in this application.
Note 7. Some models use a 2200Ω resistor in this application
Note 8. Some models use a 22KΩ resistor in this application.
Note 9. Some models use a 100KΩ resistor in this application.
Note 10. Some models use a 3300Ω resistor in this application.
Note 11. Some models use a 47KΩ resistor in this application.
Note 12. Some models use a 15KΩ resistor in this application..
Note 13. Some models use a 680KΩ resistor in this application.
Note 14. Some models use a 470KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: MERIT PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: TRIAD PART No.
T1	117V AC @1.8A	640V CT .225A DC	5V AC @ 3A	6.3V AC @ 7.1A Sec. 4 6.3V AC @ 1.5A	12A-18839	P-8159 ①	P-3070	TP-405	R-39BC

① Add series resistor to reduce high voltage.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	NOTES
T2	2Ω @	120Ω @	12M-18241	A-8111 ②	A-3000 ② HV0-7 ③	TBO-2 ②	A-97X	Vert. Osc Trans
T3	22Ω @ Tap @ 30Ω Sec	0Ω Tap @ .5Ω Sec 2 21Ω Tap @10.5Ω Sec 3 0Ω	20I-19817-1					Horiz. Output Trans
T4	690Ω Tap @ 9Ω		12C-19048	A-8123	A 3037 ③		A-102X	Vert. Output Trans
T5	14Ω		20I 19490	DY-8	MDF-70			Horiz Deflection Coils
D	50Ω							Vert. Deflection Coils

② Drill new mtg holes
③ Replace Width coil with MWC-1
Use center-tapped secondary of MWC-1 as Sec 2 of T3 (Observe polarity)
④ Drill one new mtg hole

TRUETONE MODEL 2D2149A

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA					NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.	
	PRI.	SEC.	PRI.	SEC.						
T6	8KΩ	3.2Ω	450Ω	.4Ω	12C-18743	A-8114	A-2931	RO-13	S-51X	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	P.M.	3.2Ω	18A-19895	ST-108 Mod. P6-X	6A1	
	CONE DIA.	V. C. DIA.				
SP2	6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	TRUETONE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L1	.225A	30Ω	1HY	16A-17959		C-2974		C-23X
L2	.225A	30Ω	1HY	16A-17959		C-2974		C-23X

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA			NOTES
		PRI.	SEC.	TRUETONE PART No.	MERIT PART No.	IRC PART No.	
L3	Ant. Coil	0Ω	0Ω	201-17143			High Band
L4	Ant. Coil	.1Ω	.1Ω				Low Band (Part of L3)
L5	RF Choke	.7Ω		16A-17128			
L6	RF Coil Pri.	.1Ω		13E-17140			High Band
L7	RF Coil Sec.	.1Ω		13E-17140			High Band
L8	RF Coil Pri.	.1Ω		13E-12046			Low Band
L9	RF Coil Sec.	.1Ω		13E-12046			Low Band
L10	Osc. Coil	.1Ω		13E-17140			High Band
L11	Osc. Coil	.1Ω		13D-12155			Low Band
L12	Conv. Plate Choke	9.8Ω		16A-18025			
L13	Decoupling Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L14	1st Video IF	.3Ω		13M-19521			
L15	RF Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L16	Fil. Choke	.2Ω		16A-17937			
L17	2nd Video IF	.1Ω		201-15612			
L18	Decoupling Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L19	RF Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L20	3rd Video IF	.1Ω		201-15612			
L21	Decoupling Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L22	RF Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L23	4th Video IF	.1Ω		201-15612			
L24	Grid Choke	2.2Ω		201-15608			
L25	Decoupling Choke	1.8Ω		16A-18676 or 16B-16023		CLA	2.2Microhenries
L26	Fil. Choke	.2Ω		16A-17937			
L27	5th Video IF	1.2Ω	.7Ω	13B-19958			
L28	Peaking Coil	7Ω					83Microhenries
L29	4.5MC Trap	1.5Ω		201-20062			Includes L28, C51 & C57
L30	Peaking Coil	22Ω		16A-19365			410Microhenries
L31	Peaking Coil	6.7Ω		16A-19485			240Microhenries
L32	Peaking Coil	9Ω		16A-19486			380 Microhenries
L33	Bound IF	3Ω		13A-19514			
L34	Ratio Det. Trans.	3.8Ω	.1Ω	13M-19643			Tap @ .4Ω
L35	Horiz. Osc.	70Ω		13D-19540			
L36	Horiz. Size	.3Ω		13M-18233	MWC-2		
L37	Horiz. Lin.	5.5Ω		201-20186			Tap @ 1.8Ω
L38	Fil. Choke	1.3Ω		16A-19818			Some models use a 2.2Ω resistor in this application.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA						
			TRUETONE PART No.		LITTELFUSE PART No.		BUSS PART No.		
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER	
M1	3AG Slo-Blo	1/4 A	46B-18362	55F-18024	313.250	351005	MDL 1/4		

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M2	RF Tuner		
M3	Switch	20F-12108	TV Phono
M4	Focus Magnet	55P-19600-1	
M5	Ion Trap	16M-19906	
B2	Trimmer	8E-18508	Horiz. Drive 80-480MMF

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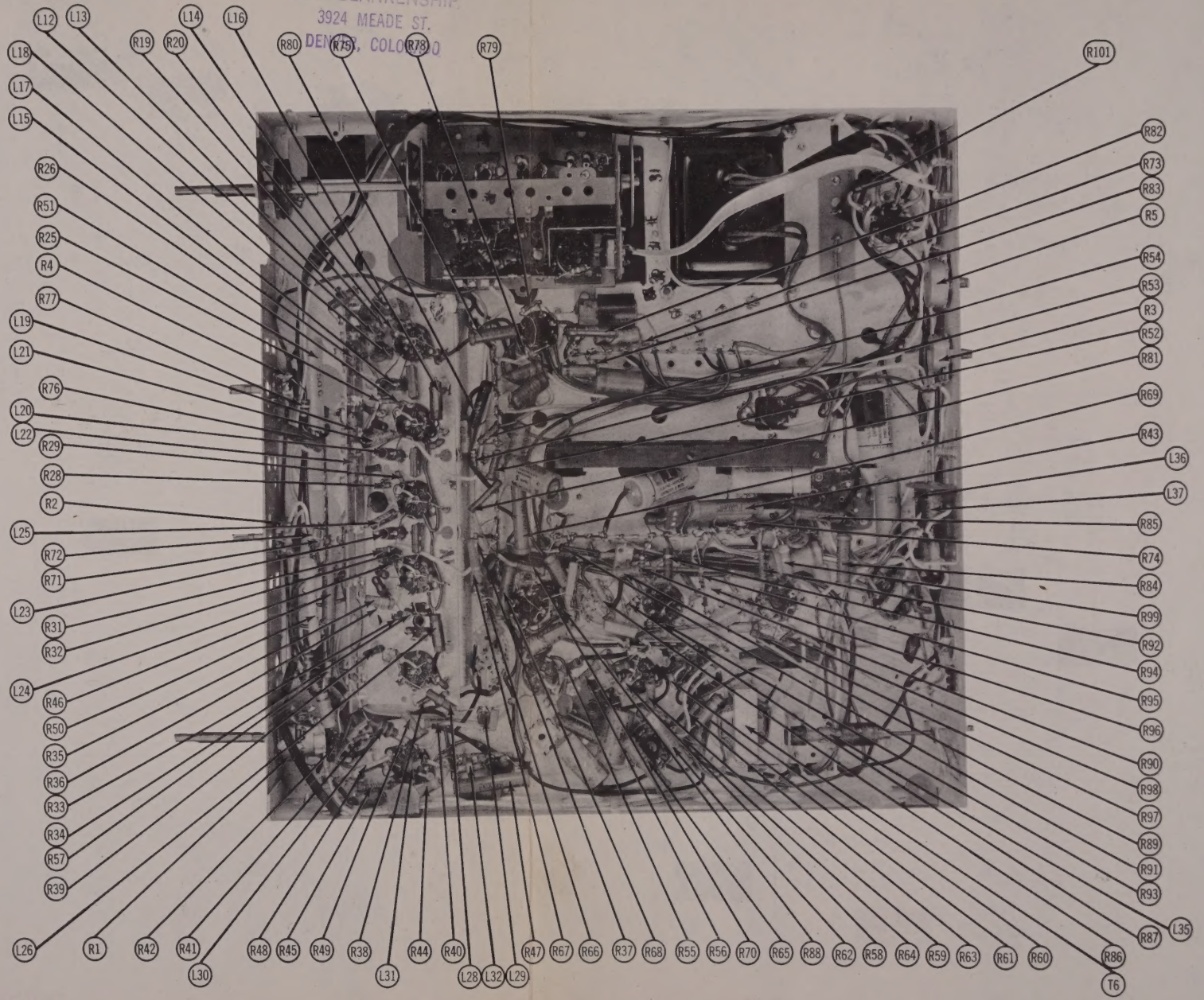
DENVER, COLORADO



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION